DOCUMENT RESUME

ED 279 564 SO 017 763

AUTHOR Graves, Norman J., Ed.
TITLE Geographical Education: Curriculum Problems in Certain European Countries with Special Reference to the 16-19 Age Group. Papers Presented at a European Conference on the 16-19 Geography Curriculum (London, England, March 30-April 1, 1978).
INSTITUTION International Geographical Union.
PUB DATE 78
NOTE 214p.; Document contains light type.
PUB TYPE Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC09 Plus Postage.
DESCRIPTORS Comparative Education; Cross Cultural Studies; Curriculum Guides; *Curriculum Problems; *Educational Trends; Elementary Secondary Education; Foreign Countries; *Geography; *Geography Instruction; Higher Education; *Instructional Materials; Social Sciences; Social Studies
IDENTIFIERS European Geography

ABSTRACT

Fifteen papers about the secondary geography curriculum are presented. Two papers from the Netherlands present a conceptual model for planning curriculum units and the relationship between the cognitive development of children and adolescents and the conceptual structure of geography. The Danish paper discusses geography's role in developing general abilities and skills. Two papers from the German Federal Republic describe the background to the German Geography Curriculum Project and the impact of the project in a teaching unit. Six papers from France deal with student perception of the syllabus, reforms proposed and implemented reforms, the case for stronger emphasis of physical geography, and the disenchantment with geographical studies. Papers from Austria, Switzerland, and the USSR include changes that have occurred in their geography curricula. The paper from England reviews the Geography Curriculum Project for the 16-19 age group in that country. (KWL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED279564

International Geographical Union

Commission on Geographical Education

Geographical Education: Curriculum Problems in Certain European Countries with Special Reference to the 16-19 Age Group

SO017763

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Joseph P. Stoltman

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Edited by

Norman J Graves

INTERNATIONAL GEOGRAPHICAL UNION

COMMISSION ON GEOGRAPHICAL EDUCATION

GEOGRAPHICAL EDUCATION: CURRICULUM PROBLEMS IN CERTAIN EUROPEAN COUNTRIES WITH SPECIAL REFERENCE TO THE 16-19 AGE GROUP

edited by

NORMAN J GRAVES
CHAIRMAN: COMMISSION ON GEOGRAPHICAL EDUCATION
INTERNATIONAL GEOGRAPHICAL UNION

Papers given at a European Conference on the 16-19 Geography Curriculum

held at

UNIVERSITY OF LONDON
INSTITUTE OF EDUCATION

March 30 - April 1st 1978

CONTENTS

	Page
INTRODUCTION (N J Graves)	1
A Conceptual Model for Curriculum Planning in Geography (H Verduin-Muller et al)	7
The Importance of Nomothetic Geography for School Geography (J Van Westrhenen and Gerda Meijer)	41
Denmark: Geography in the Curriculum of the 16-19 Age Group (R Frederiksen)	70
The Aims and Organization of the RCFP of the Federal German Republic (R Geipel)	74
The Teaching Unit of the RCFP Group in Frankfurt (F Fuchs)	90
Observations on the French Geographical Curriculum (D Curran)	100
Point de Vue de la Commission Pedagogique du Comite National Francais de Geographie sur les Projets de Programmes Interessant le Second Cycle (15-18 ans) (J Bethemont)	104
Geography for the 16-19 Age Group in French Lycees (L Marbeau)	114
La Place de la Geographie Physique dans l'Enseignement du Second Cycle des Lycees et Colleges en France (J Dresch)	134
Genetic Psychology and the Teaching of Geography (J M Henriet)	148

CONTENTS

	Page
The Aims of the Teaching of Geography in the Second Stage of French Secondary Education (P Claval)	159
The Renewal of Geography Teaching to the 15-18 Age Group in Austria (W Sitte)	167
Problems of the Geography 16-19 Curriculum in Switzerland (K Aerni)	172
Secondary School Geographical Education in the USSR (V P Maksakovskiy)	182
Answering the Challenge: A Review of the Work of the Schools Council Curriculum Development Project: Geography 16-19 (M Naish)	188

CONTRIBUTORS

K Aerni	is	Professor of Geography at the Geographical Institute of the University of Bern, Switzerland.
Jacques Bethemont	is	Professor of Geography at the University of Saint-Etienne, France.
Paul Claval	is	Professor of Geography at the University of Paris,Sorbonne, France.
Donald Curran	is	A teacher of Geography at the Lycee Janson de Sailly, Paris, France.
C De Bulpaep	is	An Inspector at the Ministry of Education in Belgium.
Jean Dresch	is	Professor of Geography at the University of Paris, Sorbonne, France.
Rikard Frederiksen	is	Director of Secondary Education in Denmark.
Friederun Fuchs	is	A teacher of Geography and collaborator in the German Geography Curriculum Development Project (RCFP).
Robert Geipel	is	Professor of Geography at the Geographical Institute of the Technical University in Munich, FGR and Director of the German Geography Development Project (RCFP).
Norman Graves	is	Professor of Education at the University of London Institute of Education.
Jean-Michel Henriet	is	A teacher of Geography at the Lycee Dessaignes, Blois, France.
Vladimir Pavlovich Maksakovskiy	is	Professor of Geography at the Moscow State Pedagogical Institute, USSR.

Louise Marbeau	is	In charge of research in the teaching of human sciences at the National Institute of Pedagogical Research, Paris, France.
Gerda Meijer	is	Lecturer in Geography at the Geography and Planning Institute of the Free University of Amsterdam, Netherlands.
Michael Naish	is	Senior Lecturer in Education at the University of London Institute of Education and Director of the Schools' Council Geography 16-19 Curriculum Development Project, England.
Wolfgang Sitte	is	Professor of Geography at the Geographical Institute in the University of Vienna.
Henriëtte Verduin-Muller	is	Professor of Geography at the Geographical Institute of the State University of Utrecht, Netherlands.
Jan Van Westrhenen	is	Professor of Geography at the Geography and Planning Institute of the Free University of Amsterdam, Netherlands.

INTRODUCTION

Norman Graves

INTRODUCTION

The Commission on Geographical Education of the International Geographical Union, has a British sub-committee whose function is to co-ordinate and suggest activities within a national context in the field of geographical education and to act as a link between the IGU Commission on Geographical Education and various national bodies with similar interests. One of the activities suggested by the British sub-committee was the organization of a European Conference on the geography curriculum for the 16-19 age group. This corresponded with one of the current concerns of British teachers of geography and with the mounting of a Schools' Council Curriculum development project called Geography 16-19, which was based in the University of London Institute of Education. It was felt that such a conference might also be of interest to teachers and specialists in geographical education in various parts of Europe. Accordingly invitations were sent to number of persons and organizations known to have an interest in this field. Eventually the conference was held at the University of London Institute of Education from the 30th March to the 1st April 1978, and representatives of Austria, Belgium, Denmark, France, German Federal Republic, Ireland, Netherlands, Norway, Switzerland, United Kingdom and USSR, were present. Unfortunately it was not possible to obtain the participation of representatives of southern European countries.

The present publication represents an edited selection of the papers presented at the conference. They are edited in the sense that most of them were written in English by contributors whose native language was not English, and they have therefore been modified in minor ways. I hope that in editing them, I have not mis-interpreted the meanings of the authors. I have tried wherever possible to conserve the original wording provided by the authors. Two of the contributions from France were provided in French, and though their authors gave an English summary at the conference, I have thought it wise, given that French is an official

language of the IGU, to present the papers here in their original form.

Inevitably in a publication based on conference papers, there is a mixture of purpose and of style. Some are meant to inform on the situation of the 16-19 geography curriculum in a given country, some raise points of controversy and some are in the form of scholarly contributions concerning a particular problem within the geography curriculum. The order in which the papers are presented, has no particular merit, but where there are several contributions from one country, these are grouped together.

The first paper by Henrietta Verduin-Muller proposes a conceptual model for planning curriculum units in geography and is the result of many years of research and experimentation in the Netherlands in this area of geographical education. Its application goes beyond the school level and is seen by its author as a specialist geographical contribution to the whole field of information theory. In the second paper, Jan van Westrhenen and Gerda Meyer develop the idea that there is a relationship between the cognitive development of children and adolescents and the conceptual structure of geography, and that this relationship needs to be analyzed and made explicit. An example is used, that of a spatial system, and it is shown: that each element in the spatial system has a "weight" and interacts with other elements depending on the absolute and relative distances between the elements, that the theoretical concept of "accessibility" is one which links up with "empirical or class concepts" to enable an analysis of that particular spatial system. The aim is to facilitate the teaching of a geography which is intellectually challenging.

In an all too brief paper Rikard Frederiksen gives a tantalizing glimpse of current educational reform in Denmark, in which geography is given the task, like many other social science subjects, of developing general abilities and skills rather than specific knowledge content. The ethos appears to be one of

pluralistic paradigms and philosophies, with the student having to make up his mind about the worth of each. From the German Federal Republic, Robert Geipel gives an historical account of the background to, and inception of, the German Geography Curriculum Project (RCFP). He demonstrates how the project has functioned and some of the problems of devising a balanced production of curriculum units. He ends on a note of pessimism, seeing current political trends in Germany and the prevalent thinking within the educational system as inimical to the kind of curriculum experimentation favoured by the RCFP. Friederun Fuchs in her paper, shows how the RCFP fits into the attempts at reforming the whole curriculum for the 16-19 age group in the Federal Republic of Germany, an attempt which is not easy given that education is not a federal but a land matter. She illustrates the impact of the RCFP through a curriculum unit on soils, which she had a large part in developing.

There follows a relatively large number of papers from France, a country which sent the biggest number of representatives to the conference. The first by Donald Curran gives the view-point of a teacher with day to day contacts with the 16-19 age group, who sees his students as being some what disenchanted by the intellectual fare being offered by the official syllabus. Jacques Bethemont, who presides over a commission of the French National Committee for Geography which is concerned with the reform of the official syllabus, puts forward the suggestions made by that commission for a new syllabus for 16+ year old students ("seconde"). Louise Marbeau who has the gigantic task of leading almost single handed, experiments in the "human sciences" curriculum of French schools, examines the background to current attempts at official reforms in the geography curriculum as well as the limited experiments which have been going on in individual schools. Jean Dresch, who represents the "French Association of Physical Geographers", puts forward a case for retaining a much stronger element of physical geography within the official curriculum for the 16-19 age group. Broadly his case rests on the importance of the resource

base of modern economics and on the inevitability of physical elements in ecological relationships. Suggested syllabuses are put forward for the "seconde" and "première" (16 and 17 year old students). Jean Michel Henriet, who is also in close contact with the 16-19 age group, attempts to show in his paper, that the present French official syllabus for the age group is designed on a principle which is contrary to what we at present know about cognitive development. Whereas students in that age group can be expected to think in a hypothetico-deductive way the last two years of the official lycee syllabus are weighted down with information about France and about the great world powers. The last French contribution, by Paul Claval, a member of the Commission on Geographical Education of the IGU, presents the interesting thesis that the present disenchantment with geographical (and historical studies) stems from the development of what he calls the psycho-analytic outlook rather than a consensus outlook based on the values of western civilization. The pluralistic and individualistic values of the present day younger generation seeking meanings which have relevance of a personal nature, have no use for the space time perspectives that geography and history sought to give. He therefore sees that geography can only make an appeal, if it is directed to helping young people to explore their own personal environment, to understanding the mechanisms that shape their own time - space context, rather than attempting to paint the world on a broad but static canvas.

The following three papers give descriptions of the kind of changes which have occurred in the geography curriculum for the 16-19 age group in Austria, Switzerland and the USSR. Wolfgang Sitte sets the scene in Austria, Klaus Aerni shows the impact of cantonal organization and of the Association of Swiss geographer Vladimir Pavlovich Maksakovskiy indicates the evolution of thinking about the geographical curriculum in the USSR.

Lastly, Michael Naish, who directs the Geography 16-19 Geography Curriculum Project in England, describes the current state of development of the project and its aspirations. It is apt to end with the comment that through the disparate nature of the papers, the reader may catch a glimpse of the rich variety of developments in geographical education within Europe.

A CONCEPTUAL MODEL FOR CURRICULUM PLANNING IN GEOGRAPHY

(Design and realization of geographical information units)

"Arthur and Judith Getis worked nearly full time from November 1964 to June 1965 on the first urban unit. They had no model to work from."

Nicholas Helburn in the "Final Report on the High School Geography Project", 1970, p.34.

Dr Henriëtte Verduin-Muller

in cooperation with
Drs Rob van der Vaart
Drs Hein Hoitink
Drs Godelief Verschuren
Drs Jan Franke

and doctoral students of the Department of Human Geography for Education and Information transfer

Geographical Institute
State University, Utrecht.

January 1978

A CONCEPTUAL MODEL FOR CURRICULUM PLANNING IN GEOGRAPHY

(Design and realization of geographical information units)

CONTENTS

1. On the objectives of and need for formal and non-formal education

2. On the aims of geographical education

3. Geographical information units: a survey of the literature

   3.1. Introduction
   3.2. A survey of relevant literature
   3.3. Summary and evaluation

4. A conceptual model for the planning of geographical information units

   4.1. Introduction
   4.2. The conceptual model: diagrammatic presentation
   4.3. The conceptual model: description

      4.3.1. Formulating the aims and roughly estimating the target-group
      4.3.2. The phase of studying the geographical sources
      4.3.3. The phase of the development of the conceptual structure
      4.3.4. The phase of the designing of an information structure
      4.3.5. The phase of realization
      4.3.6. The phase of evaluation

5. A reflection on the model

6. Final remarks

A CONCEPTUAL MODEL FOR CURRICULUM PLANNING IN GEOGRAPHY

(Design and realization of geographical information units)

1. On the objectives of and need for formal and non-formal education

The content and the form of education (formal and non-formal) is a source of great interest throughout the world. And no wonder for if a humanistic emancipatory view of education is taken it provides people with the ability to function adequately in society. Whether people can maintain and fulfil themselves in social and economic life in accordance with their potential depends on a whole series of factors.

Reinforcing the literature on this theme we would argue that an intellectual and emotional grasp of a coherent unity of skills, knowledge, concepts, and attitudes, values and beliefs provides a prerequisite condition for adequate functioning in society.

Thus it is necessary for the discipline with which we are concerned i.e. geography or a cluster of human and social disciplines to develop the necessary instrumentation, to fulfil these aims. To achieve these aims support must be sought from educational sciences e.g. curriculum-theory.

The need for educational information will now be sketched in broad terms. We do neglect the past. In our overall outlook we pay more attention to the present and the future. Similarly, because educational information in the western and non-western worlds differ so much, at least in relation to organisational structures, we need to make distinctions between the two worlds. First we will direct our attention to the western world, then the non-western. But this sequence does not represent any priority of importance.

The western world is developing as a post-industrial service society. Among its characteristics are a great variety of types of work; an increase in

leisure time; an increase in inter-regional contacts; internal democratization; and an emphasis on education as a means of 'learning to be' (title of a recent UNESCO report, 1972). All these have distinct and formal consequences for education. In addition, education itself is undergoing a change in function and style, becoming more emancipatory, having outgrown both qualitatively and quantitatively traditional formal education to the age of 18.

Expository learning remains necessary for certain purposes, but is given less priority. Discovery learning, and the structuring of learning in curriculum units using information and documentation material, so essential for both social and mental development, is stimulated. Education is no longer confined to school and a particular age group. These may well allow the realization of educational aims outside the traditional day-school through, for example, second-chance education, life-long education or recurrent education.

Information is being disseminated to increasingly broad sections of the population in comparison with the past. As part of the democratization process, for example, the opportunity for all groups of people to participate in physical planning at different levels is a highly significant development. For this to be properly undertaken, a much broader education base in the lay population is required.

In the non-western world there are particular educational needs, such as the elimination of illiteracy and expansion of all types of continuing education. An extension of the influence of the formal institution, the school, seems to be wanted less and in some regions is not given precedence. In such areas, schools tend to become urban or suburban, compelling migration from rural areas. In practice, there is no re-migration after the completion of schooling. Thus more and more reliance has to be placed on local educational initiatives.

Educational information dissemination is of essential importance. This is especially true of innovative information, whose function it is to familiarise the population with changing situations, such as those

connected with the execution of new physical projects. In addition to school, the peripatetic teacher and the information officer, the use of mass-media (education by radio in Thailand and many Latin American countries: education by satellite in India and West Africa) contributes to this task. An inadequately developed infra-structure makes more necessary the use of mass-media and non-terrestrial bound communication channels such as satellites, at least for a start to be made in the solution of such educational dispersal problems.

In this light, we can say that in both these worlds the significance of the traditional role of teachers and information officers as purveyors of knowledge diminishes, and the more progressive function of creative companions of the learning process increases. This process is being helped by the provision of structured and theoretically underpinned curriculum units. If such 'companions' carry out their task in a proper way, they must be able to make explicit the cognitive and affective aims and objectives underlying their units. If necessary, they themselves must have the capability and courage to develop, realize and disseminate such units, preferably in cooperation with others. The 'new' teachers and information officers will, among other things be, in the words of Meredith, information scientists in relation to their disciplines.(1) Thus the basic function of the teacher and information officer has to undergo a thorough transformation: a matter of explicit professionalization.

The conceptual underpinning for these educational activities provided by the disciplines is to be found in curriculum theory. So it will be necessary to develop a curriculum model as a basis for planning educational information in whatever subject is concerned. And since we are concerned with the discipline of geography we undertake the development of the model with that discipline in mind.

Thus the educator is no longer a person stuffed with a lot of subject knowledge, dispensing it via a number of didactic devices for the edification of pupils and clients. During his training, he must remain acquainted with his discipline at a high academic level

and also become knowledgeable about relevant aspects of curriculum theory. It goes without saying that in addition the education of teachers and information officers in training institutions and universities needs to be adjusted or brought into harmony with these developments.

2. On the aims of geographical education

The aims of geography as a school subject until recently were a typically nationalistic or even chauvinistic concern. From country to country statements of aims could differ considerably. If the aims were not made explicit, as was the situation in most cases, they could be deduced from the nature of the curriculum and from the curriculum content, as might be found in geography textbooks.

It can be argued that the nature and practice of the university discipline of geography were leading influences on school geography. Until well into the sixties, school geography was largely made up of a painstaking description of countries and their regions, that is, a regional geography framework. Within regional geography, different countries set their own accents: in Germany, often a romantic view of landscape; in the United Kingdom, an emphasis on local field work; and in the USA on gaining insights into the diversity and unity of a vast country. In Dutch geographical education, physical planning was an early topic.

With the increase in mutual contacts between colleagues at a national and an international level, through books and articles, conferences (papers, formal and informal discussions), study periods abroad (grants, scholarships, sabbatical leave) and so on, discussion about the discipline has increased, and has included discussion about the function of geography as a school subject.

Thus the quantitative paradigm in university geography has had considerable influence on geographical education. The American High School Geography Project has also had far reaching consequences for geography teaching through the world.(2) In particular we would mention its

influence in Britain and West Germany. These influences are implicit in textbooks and workbooks as well as explicit in projects. (3)

These developments cannot be separated from developments in society, from social consciousness, from the growth of curriculum theory, and from general and special didactics. There is not space here, however, to work out the complex interplay of these different factors. After carefully weighing the social and educational contributions of geography in school and in society on the one hand, and the possibilities and limitations of geography as a discipline on the other, we would formulate the aims of geographical education as follows. (4)

We take the view, that the aim of geographical - both formal and non-formal education is that man see himself in his relations to his immediate and distant environment. This relationship changes continuously. In order to be able to determine his social and existential position, man must be able to orient himself in his environment and to acquire insight into the changes which are taking place in it. On the one hand, man is part of an ordered environment by his own activities. Physical processes also cause changes independent of man. Thus a continuous reshaping occurs, either gradually or precipately. It is the task of geography for education to make man thoroughly familiar with the existing physical-spatial and social-spatial structures as well as the genesis of these structures and with the processes especially those concerning spatial behaviour and behaviour in space which influence them. As a consequence of the continuing spatial re-ordering man is constantly confronted during his lifetime with new relationships. The underlying aim is therefore that man can and dare venture independently to acquire insight into for him new spatial social relationships.

These aims reflect the dynamic character of the time with its rapid and radical socio-economic changes. We want to emphasise that in the attempt to realise these aims, there will be scope for the practice of Pattison's four 'traditions' of geography, outlined in 1964 as a basis for discussing the potential input of the subject discipline into the American High School

Geography Project: these were the 'spatial tradition', the 'area studies tradition', the 'man-land tradition' and the 'earth science tradition'. (5)

3. Geographical information units, a survey of the literature

3.1. Introduction

In sections 1 and 2 attention has been paid from a societal standpoint to the need for a curriculum theory for educational information and to the aims of geography within formal and non-formal education. The purpose of this paper has made it necessary to be brief on these themes. Concluding, we can postulate that there is a demand for geographical subject-matter in the form of geographic learning units, a demand which is increasing quickly. We prefer to replace the term 'geographic learning units' by 'geographic information units', for three reasons.

First, the demand for geographic information units is equally applicable to education (school as well as non-school) in general. Thus the use of the same term is to be recommended.

We explicitly postulate that here the word information is used in the original significance of the term, namely content put in-formation, i.e. the highly structured content. (6) The word information (Lat .) was used until the middle of the 18th century. With the development of national languages in international communication the word went out of use. (7)

Secondly, school and non-school education have essentially the same emancipatory function as to geography.

Thirdly, the term 'subject-matter' has a restrictive quality, whereas in viewing the objectives of education, subject-matter is self-evidently source material for thinking activities and not an end in itself.

Geographical information units have varied uses. Research has taught us that there is a much greater variety of uses for such units than we anticipated

at the start of our research. They can be used by the teacher in the actual teaching situation, but also students (in school and in non-school education) can work with the units on their own or in small groups.

The geographical information starting points and strategies for achieving the objectives are in principle the same as for devising units for school and non-school education.

Thus the process is similar even where a broad common basis is being taken. This is very important because from a scientific point of view it makes sense to study the curriculum process which is at the root of the design and realisation of geographic information units. The determination of a conceptual model for the planning of geographical information would signify that a start has been made in developing a geographical information theory. (8) The forming of such a theory to be seen as a specialism within curriculum theory, we think, is essential in view of the functions of and need for geographical information units (see sections 1 and 2).

Three questions must be considered:

1. What will form the criteria under-pinning geographical information units?

2. Who is competent to take the responsibility for developing and realizing such units?

3. What process will form the basis for the development and realization of geographical information units?

To answer these questions, we must turn to two disciplines: geography and curriculum science.

In the following we will undertake some investigation of the literature related to these disciplines. First, the geographical education, then curriculum science.

3.2. A survey of relevant literature

In geography, there have appeared from the sixties and seventies a number of curriculum projects. Such projects

can be seen as a collection of more or less coherent geographic information units. Among them are some of high standard. Unfortunately, we do not always meet in them systematic, explicit criteria, as well as a description of the process of development, that must have formed the basis for the development of the units. Though this is a pity, it is perhaps understandable because in the first instance the output was the important factor. Moreover, a more scientific infusion into geography in the framework of curriculum development is fairly recent.

In a project such as the American High School Geography Project (HSGP),the very interesting genesis is described in extenso. The constraints encountered in the development of the project provide insights into the process into which we wish to enquire. In the case of the HSGP the concern was the discipline of geography. And in detail was mentioned the enormous amount of time and energy required for designing realizing the 'activities'. (9) The lack of a model for a functional development of geographic information units is posed by Nicholas Helburn in the Final Report of the HSGP. In the chapter, 'The Development Process', Helburn's contribution to the final report, he describes the 'happenings' in a realistic and human and at the same time a relative way. In fact it sounds as if he sighs as he remarks: 'Arthur and Judith Getis worked nearly full-time from November 1964 to June 1965 on the first urban unit. They had no model to work from' (italics V-M). (10)

In a concluding paragraph under the title 'Lessons', he gives a summary of the problems for 'those who venture into the dimly lit corridors of curriculum reform'. Though curriculum reform covers a broader field than our more limited topic, we think the 'Lessons' of such importance that we present them more fully in the foot-notes. (11) After all, the process of developing units is an exponent and a very essential one in curriculum development. Besides, it became obvious that as we progressed with our research the more the lessons made sense for us.

The structure of the West-German RCPF (Raumwissenschaftliches Curriculum Forschungs Projekt) can be

analysed in the light of information provided by Robert Geipel, a major stimulus in the initiation and development of the project. An inaugural and an interim conference were held at Tutzing in southern Germany in 1971 and 1975 respectively, from both of which publications emerged. (12) The proceedings of other RCFP meetings have also been documented. These publications provide much interesting information on the how and the why of the West-German project. Thus especially in the report of the RCFP-Goslar conference (March 1976) we find a scheme which could be useful in developing the learning units. (13) Though the scheme does not form object of research, it could be in the long run - i.e. after repeated use - a stimulus for the development of a process-model.

The authors of the successful set of books: Oxford Geography Project have also been inspired (as was the RCFP) by the HSGP. Above all the statement of the goals for each of the activities published in the Teachers' Guide was most impressive. Obviously the aim of the project was a high standard output. Some background is given by the authors in an article in Teaching Geography. (14)

Regarding the British School Council's projects devoted in whole or in part to geography, a varying amount of information has been provided about the rationale of the projects and the way they have set about developing geographic units.

The project GYSL, 'Geography for the Young School Leaver' (1970-1974) has not produced a handbook outlining its rationale, but articles have been written and there is a discussion of objectives in the Teachers' Guides for each unit. (15)

One of the other early British projects, the Bristol 14-18 Geography Project (which essentially became a 14-16 project) and developed between 1970-1974, outlined its rationale in a very inquiring booklet. (16) Unfortunately it is now out of print but with reference to the Bristol project, there has appeared in the course of 1976 a folder produced by the course team of the Curriculum Design and Development group of the Open University. (17) In this folder

the Bristol project's work is analysed in terms of its innovational significance in curriculum development in geography. For us it is important that criteria for the production of curriculum materials are given in the sense of geographic units. In the foot-notes the reader will find the criteria fully quoted. (18)

The Liverpool Project 'History, Geography and Social Science 8-13' (1971-1975) has produced a detailed handbook, outlining its general aims and objectives and given attention to the place geography might play in a general humanities framework for this age group. In developing the units we learned from the handbook and articles that especially attention was paid to the approach of the subjects through the use of key-concepts. (19)

At the University of London in the Geography Department of the Institute of Education is, since 1976, under development a Geography Project 16-19. It is to be hoped that the development of the action process, which we called the geographical information process also will be analysed and described. (20)

In conclusion, we will pay attention briefly to our own research during the period 1957-63. (21) From it, it became clear that the planning of geographical curriculum units was a very complex process, difficult to grapple with. This was the time in which the emphasis was on aspects of presentation: verbal content, visual and audio-visual aids. The conceptual structure and its relationships with content and the mode of presentation were not considered, or were insufficiently recognised. At this time also, the discipline of geography was about to be renewed, or, better still, was set on the path to a greater maturity.

Now to our research findings from that period. Our comparative and experimental research indicated that to optimise the planning of geography curriculum units full attention should be paid to:

- mutual coherence between the parts, with a conscious attempt to provide a conceptual structure

- the selection of geographical information to be structured in the light of that conceptual frame-work, with the presentation of the content a marginal (though not unimportant) factor.

It was these initial research findings that we resolved to extend when the situation was in favour of that happening. This was in 1974. In section 4 we will come back to this follow-up research.

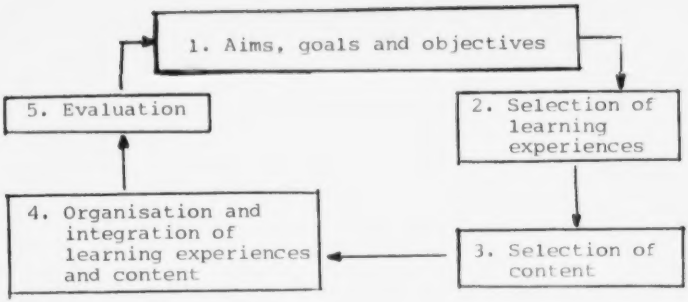
Having come to the end of our short survey of the literature so far as the educational geographical component is concerned, we must now look at curriculum theory, prior to evaluating the outcome of the research.

Curriculum theory has gradually evolved over the last sixty years or so, though curriculum discussion is of a much earlier date. Interest in the development of a theory of curriculum development as such was first shaped in the Age of Enlightenment. It was the first time in history in which there was systematic thinking about the widening and deepening of education as such. This 'age' was the first time in history in which ideas about content and methods of education were widely discussed, but which have been unable to be translated into practice on a broad scale until recently. The literature of this period gives a fascinating insight into these more enlightened developments. (22)

With the outbreak of the French Revolution, these promising developments were unfortunately temporarily cut off or at least slowed down. This was at any rate the situation in Europe.

The science of the curriculum is composed of a number of specialisms. Two of them are especially relevant to our purpose: the theory of curriculum planning and educational technology, involving for example the development of learning units, and of audio-visual materials respectively. These two fields are of course closely related.

A model of curriculum development shows in its classic form a cyclic picture. And this would be necessary in connection with the need to test the model. As represented in the following diagram, the model recurs again and again in different ideas in the curriculum planning-literature. (23)


1. Aims, goals and objectives
2. Selection of learning experiences
3. Selection of content
4. Organisation and integration of learning experiences and content
5. Evaluation

The essential components are aims and objectives, strategies to achieve the aims and objectives (content and teaching-learning strategies) and evaluation, the latter feeding back to the other components.

These essential components can also be perceived in the numerous models of development of learning units. Such models have proceeded from the discipline of instructional design or learning system design. Such a strategy has been worked out by, among others, Gagne, whose long-standing research has provided much insight into optimising the effectiveness of the instructional process, through his identification of different types of learning.

According to Gagne twelve steps can be discerned in the process of instructional system development: (24)

1. Analysis and identification of needs
2. Definition of goals and objectives
3. Identification of alternative ways to meet needs
4. Design of system components
5. Analysis of (a) resources required, (b) resources available, (c) constraints
6. Action to remove or modify constraints
7. Selection or development of instructional materials
8. Design of student assessment procedures
9. Field testing; formative evaluation and teacher training
10. Adjustments, revisions, and further evaluation
11. Summative evaluation
12. Operational installation

At first sight it did not seem that Gagne's model nor similar models could give us any support in the planning of geographical information units. (25)

The fact is that all these process-models have been generalized to the extent that they do not provide a means of making concrete decisions about subject matter. Questions like the following are not answered in these models: what are the relationships between aims/objectives and the geographic discipline, or: how should the subject matter component of learning units be gradually unfolded in the development process.

Only after two generations of research did Gagne's components turn out to provide us with starting-points for our curriculum development ideas in geography.

3.3. Summary and evaluation

In recapitulating the results of our survey of the literature we can state that both geography for education and curriculum science contribute each according to its nature (of this moment) to the needs of producing information units. The geography applied to education is concerned with the output, the curriculum science with the structuring of the output. It seems that both require each other.

To a certain extent we got an answer to the three questions we put. We could quote criteria for geographical information-units with much agreement (Bristol Project) and from the information on other projects similar criteria can be derived (HSGP, RCFP, Oxford, CYSL, Liverpool Project; Oxford is a 'commercial' venture).

The competencies required by the people designing and realizing geographical information units is not made explicit in the literature we studied. It is obvious that this job should be done by a team of experts with different specialisms in this case composed of geographers, curriculum-theorists and other specialists such as media-experts. In practice, which in some

cases runs ahead of theory, such cooperation seems to happen incidently. But in practice the different experts should make a conscious attempt to find each other. The delimitation of the input from different experts must become evident in the light of the dictates of the geographical information process. Again the theory has to be affirmed in cooperative practice.

Principally and in broad terms, curriculum-theories point out the process in the form of a model or a system, that must lead to designing and realizing of high-quality information units. The component instructional design is specially concerned with this.

The geographer Helburn highlights, as we saw, the utility of such a model (Final Report HSGP). However a model for geographical information processing is not yet developed by geographers. In the West-German RCFP and in the British School Council Projects we did find ideas which could in the long run and in principle contribute to the development of such a model. It is evident that such a model can also be beneficial in the delimitation of the working party.

In the next section we will describe a conceptual curriculum model for the process of the production of geographical information units as developed by us on the basis of two generations of research.

4. A conceptual model for the planning of geographical information units

4.1. Introduction

In the former sections we stressed the need for the availability of geographic information units on a large scale. We started therefore from the objectives of and the need for education with special references to the geographical component.

In view of the aims outlined well defined demands will be made on the quality of content and on the form of the geographical information units. The curriculum process that leads to such a responsive product we call

the geographical information process. In this section a conceptual model for the planning of geographical information units is presented and described. It is based on two generations of inquiry-projects, totalling ten investigations. (26)

The basic function of a conceptual model is to reflect experience in an organized way. The elements in the model have the function of explaining propositions for the geographical information process. After the description of the model there follows comments on the model. Examples of instrumentalisation in some of the inquiry-projects will be forwarded to you on request.

4.2. The conceptual model: diagrammatic presentation

Thinking about structures and processes is made easy by the visual representation of these structures and processes. This is why the conceptual model for developing geographical information is presented, first visually by means of a diagram, after which a description of the elements follows.

There will be a continual evaluation during the development of the process, so before going to the next phase each completed phase will be re-examined in itself and in relation to previous phases. This kind of process evaluation is necessary to prevent us from losing sight of the process as such.

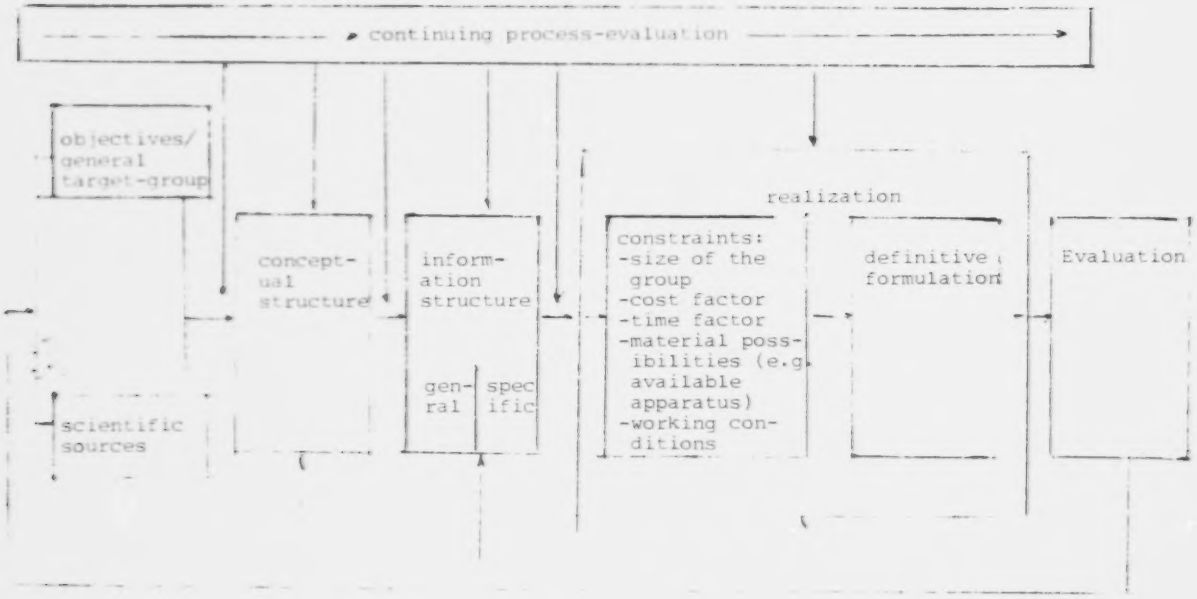
4.3. The conceptual model: description

4.3.1. Formulating the aims and roughly estimating the target-group

In this first phase of the conceptual model the formulation of the global aim regarding the theme and the educational perspectives, takes place.

These global aims are of course insufficient to pass adequately through the process in each phase. Each of the phases in the process has its very own aim within the context of the complete model. The global aim concerning the theme and educational perspectives are continually being more precisely specified.

A Conceptual Model for the Planning of Geographical Information Units



Geogr. Inst.
State University
Utrecht

In this first phase of reflection on the starting behaviour, the target-group is mentioned provisionally as a category; it is not until the phase of designing of the information-structure and during the realization that a specification follows and the target-group as such becomes of real importance.

4.1.2. The phase of studying the geographical sources

In this phase the sources of material relating to the theme are studied. In the first instance these will be secondary sources. It is not the task nor within the competency of the educational information-geographer to do fundamental geographic research. To research-workers he can point out the necessity of specific source-study or, in joint collaboration, initiating such research as supply for the secondary sources.

We emphasize that it can be important that an educational information-geographer visits the location and perceives with trained eye. Then he may be doing primary research in the sense of interviews, observations, etc.

The study of sources has to be planned in a broad way and following the methodical principles acquired by the survey of social science. So, the theme as formulated in the aims is studied in breadth and especially depth. If studying of the theme takes place only in the breadth, this will offer the educational information-geographer an insufficient base to deal analytically with his discipline. That is why it is important that problem-orientated survey of sources is undertaken, which obliges the educational information-geographer to engage with certain aspects of the theme on an analytical level. The educational geographer must have sufficient command of his theme in terms of geography as a discipline so that he can engage in a creative encounter with the outcomes of his study of the sources in the phase of designing the conceptual structure. A deficit in his command of the theme could lead to a translation of the sources studied or a disorderly choice of contents as related

to the aims. This would lead to a situation which is information-theoretically inadequate and thus undesirable.

This phase is completed with a working-document. This working-document has as its primary function the ordering of obtained knowledge and insights. The degree of detail with which the working-document should contain will depend on the prior-knowledge of the information-geographical educationist. So, an educational information-geographer who has an excellent knowledge of a certain theme will feel no need to draft a working-document in detail.

The amount of time spent in the phase of studying the sources depends on several factors. The most important of these are the prior-knowledge of the theme, the range of the theme, the available literature, reading- and studying skills.

4.3.3. The phase of the development of the conceptual structure

This phase is the most essential in the processing-model because an original constellation of contents emerges. For in this place the concepts and the relationships between them are postulated as a base for the next phase, that of the information-structure. The phase of the development of the conceptual structure forms a very essential element in the processing of geographical information units.

The designing of a conceptual structure is a creative process, the points of departure of this construction being formed by the aims and by the results of the professional study of sources. The conceptual structure is an original construction because it is the outcome of the results of the professional study of source material, set by the aims. In the last resort, this is a function of the aims postulated. In time, the evaluation will prove if the constructed conceptual structure has contributed to realisation of the aims.

Thus, designing a conceptual structure is a creative activity. Something new emerges. It is not, we would emphasize, an activity which involves selection

or translation of the discipline. To put it more directly: it is an activity at an analytical and authentic level within the discipline.

The conceptual structure forms the hard core of the information processing model. On the one hand it is a culmination of aims and study of source materials, on the other hand it stands at the beginning of the operational phases.

The designing of the conceptual structure requires much effort and dedication because one must put the discipline to the service of the educational information aim. Thus, an independent handling of the discipline on an analytical level is required.

It is inherent in the designing of a construction that before the optimal one is designed, there must be a series of drafts. From the successive drafts results an ever stronger structure. After a first draft the designer can, if needed, return to the literature and if the literature is not available or gives insufficient information, there may be a need for further resource-study. Here one can think of a complementary study of sources, that differs in principle from the study of sources in the phase of studying sources (the previous phase).

The conceptual structure in the geographical information process is directional in a very compelling way for the further stages of the process. The educational information-geographer must keep strictly to the accepted design, under no condition being allowed to deviate from it. If a deviation, for whatever reason, is needed, it is necessary to pass through the process again from the start. Therefore it is most important that the educational information-geographer fully agrees with the finalized form of his design. A hastily constructed and ill-considered conceptual structure can cause a major loss of time and energy in a later stage. Talking over the conceptual structure with professional geographers and different experts in the field of the theme is highly recommended.

The phase of the conceptual structure occupies relatively a great deal of time as a result of considering:

- the choice of the concepts in the light of the aims;

- the indication of the connections between the concepts in which full account is taken of the shifting in socio-economic and socio-spatial coherence over time, thus the construction of the structure itself;

- and, eventually, the complementary study of sources.

The visible results of all these activities of thinking and visualising is sometimes disappointing for an outsider, namely a half page structure.

4.3.4. The phase of the designing of an information structure

Starting from the previously formulated conceptual structure the operationalisation activities begin in this phase, at which the target-group is also taken into account.

If necessary, in this phase, a survey of the target-group will be restricted to a certain amount of specification. In global terms the target-group often is known. In general, such a knowledge is sufficient for the process under consideration. Of course, in the actual didactic working-situations the target-group has to be known much more precisely. In the designing of the information structure each element is worked out on the basis of its adjuged value in the conceptual structure. This working out takes place according to the aims and the knowledge of the target-group. Thus the geographical information value, as adjusted in the concepts and the relation between the concepts, is carefully preserved.

The phase of the information structure consists of two sub-phases:

(a) the designing of a global information structure and
(b) the designing of a specific information strucutre.

In the global sub-phase the information-content is delineated and also the sequence and the related form-aspects are proposed. Form-aspects include not only an indication of the means of expression, but also the learning-strategy. In the case of the learning-strategy a balance must be found between expository and discovery learning and justified. Thanks to this procedure one gets a general view of the structure of the information in all its aspects. So the inner harmony in respect of the information-geographical and educational aspects, both within and between the elements, is maintained.

In the second sub-phase, the designing of a specific information structure, the contents and form-aspects are further worked out. Also, the exercises and tasks are in principle formulated. For the exercises and tasks have to form a unity with the information that has become available.

As stated in 4.3.1. each phase in the process has its own objectives within the context of the complete model. This counts especially for the specific phase of the information structure. It is of fundamental importance to formulate precisely the behavioural objectives, the taxonomical categories distinguished by Bloom, as to the cognitive and the affective domain forming the guiding principle. (27)

In the phase designing the information structure a continuing study of resources, in the sense of consulting sources, takes place, especially during the designing of the specific information structure.

4.3.5. The phase of realization

The phase of realization is a complicated one. For all elements of the specific information structure a material form must be chosen. Then all the elements can be worked out in this form.

The choice of the material form of the content, the means of expression and learning-strategy is subject to a series of constraints. The constraints are formed by the conditions in which the information will be or can be used. We mention the size of the group, the costfactor, the timefactor, material possibilities (i.e. available apparatus) and working conditions. If these conditions fundamentally change, so the material form does. At this stage there is the possibility that the constraints will be used as an excuse for one-sideness in the structure of the unit. Often, one loses sight of the content at the risk of mutilating the geographical input.

When a certain material form or a combination of possibilities has been chosen, then the whole information-unit must be worked out in accordance with the choice. In this phase skilled ancillary helpers, such as text-writers, graphic artists,media-experts will be called in, conditioned by the knowledge and skills of the information-geographical educationist and the circumstances of realization.

Thus the information receives its definitive "formulation". We emphasize that also in this phase the educational information-geographer remains responsible for the realized geographical information.

4.3.6. The phase of evaluation

Finally we come to the last phase of the process, namely the evaluation. In this phase we must check to see whether the aims have been achieved in other words, if the geographical information, developed according to the process-model, is accepted and understood by the target-group. By this, we speak of product-evaluation.

It is of great importance that the target-group by which the product is evaluated is of equal merit in its composition. By means of a learning-psychological survey, evaluation of learning-conditions and of pre-knowledge, the balance between the target-groups can be easily determined.

The test-questions must be related very exactly to the aims and objectives. The scoring of the answers to the questions has to be in such a way that data which can be processed statistically are obtained. In relation to the complexity of the underpinning model it is recommended that the research-worker motivates point by point for both the nature and intention of the question and also the content and the valuation of the answer.

It seems to be a complicated procedure, but it is the only way to obtain ample enough feedback to the different phases of the process and to the relation between the phases. The product-evaluation must therefore enable us to identify where and when mistakes or shortcomings occur. This is essential for the adjustment of the product. After the correction the product must be evaluated again. Such a second evaluation and an eventual renewed correction must be followed, if necessary, by a third one etc. The product evaluation has to go on until an optimal product is obtained.

Also, the product-evaluation contributes to a refinement of the knowledge of and insight into the process-model. When we regard it in this way, product-evaluation is at the service of process-evaluation. Evaluation activities require a high degree of conscientiousness and thus cost a lot of time and energy. However, when the educational aims are of such a great importance, as in the case of geography, and in relation to the increasing demands on education, where the information can be used again and again then it seems that the investment of time and energy is fully justified. (See the first paragraphs of this paper).

5. Reflection on the model

Finally, we reflect on the model. In doing so we hope to support the reader and the potential user of the model with some useful background information.

What then is distinctive for the model?

First we think an authentic systems approach is characteristic of the model. It is not a loose

composition of curriculum elements to be realized in a desirable order, but is very strictly structured. The term system is applicable here, the different phases, the elements of the model, having the function of sub-systems. In our description of the phases of the process this becomes clear. In a next publication we will further work out the different sub-systems within the system and as well the connections of the sub-systems with the providing sciences: viz. geography, geographical education and the educational sciences (incl. curriculum theory).

A second characteristic of the model we think is the emphasis placed on the discipline and its mutual connections with the objectives which go on to provide a basis for the concept structure. A thorough survey of the discipline sources relating to the chosen theme or region is a necessary condition in our model. By thorough we mean along the normal lines of social scientific investigation (posing the problem etc.). Only after this often very time-consuming work has been done can the next step be taken. From the interaction between the objectives and the outcomes of the study of the sources, the concept structure will be designed. We underline this engagement because so much attention has been paid in the last 15 years on the formulation of a taxonomy of objectives (we can almost speak of an objectives-syndrome), that it seems only a matter of selection of material from the discipline to fill in the objectives. We are convinced that this viewpoint has done much harm to the output as well as to geographical education and the discipline as such. Of course we would not deny the importance of the objectives model. We will only point to the one-sidedness of the argument.

A third and last characteristic we want to emphasize is the position of the media. We have separated the means of expression from the communication-channel. We take the view, on the outcome of our previous research, that the different means of expression are primarily sources of knowledge, thus they should complete-ment and not replace each other. So in the phase of information structure attention should be paid, as we did in the model, to the best means of expressing the

content. Only in a later phase, in accordance with the constraints, we do have to choose a channel for our recording our means of expression. So in its ultimate form the means of expression is really a means of optimizing the information (supposing that our choice was right). Thus we hope to avoid that the content will be presented essentially in a written, verbal, form with decoration with pictures, maps, sketches, tables, graphs etc. just for cosmetic effect. We explicitly wish to see the media functioning in harmony with the information. Of course many 'authors' in practice do pay attention to this matter. It was our intention here to present the functional view in a systematic way and within the model. Apart from that we hope in the near future to get rid of the word illustration in the context of educational geographical information. In fact the word is a relict of the Gutenberg period in which the printed word was holy and the illustration a kind extra of the author.

Final remark

We would like to establish contact with those geographical educationists who wish to develop geographical curriculum information units along the lines of the model.

NOTES

(1) P Meredith: "Information Systems and Systematic Information" in The Journal of Education Science, 1968, p. 79:

"Since every educator, whether he knows it or not, is, by nature of his profession, an information scientist, we shall not begin to make headway with a science of education until these craftsman begin to analyse the stuff with which they do their daily work".

(2) R B McNee: "Does geography have a structure? Can it be "discovered"? The case of The High School Geography Project". In R J Chorley: Directions in Geography, London, 1970, p.285-313.

A M Gunn c.s.: "High School Geography Project, An analysis of the HSGP in relation to new developments in geographic education worldwide". IGU - congress, Canada 1972, p. 25-50.

N J Graves: "Geography in Education", London, 1975, p. 59.

(3) In this context, see i.e.: J Engel: "Das High-school Geography Project, ein Modell für ein Deutches Forschungsprojekt". In: Tagungsbericht und wissenschaftliche Abhandlungen, Deutscher Geographentag Kassel 1973, Wiesbaden, 1974, p. 170-180.

(4) H S Verduin-Muller: "Theses on designing and dissemination of geographical knowledge (nr.5)". 23rd IGU-congress, Moscou, 1976, Geografisch Instituut, R U Utrecht.

(5) W D Pattison: "The Four Traditions of Geography", in The Journal of Geography, 1964, p. 211-216.

(6) P Meredith: "Information Systems and Systematic Information", in The Journal of Education Science, 1968, p. 81.

H Seiffert: "Information über die Information", München, 1968, p. 26.

(7) H Seiffert: "Information über die Information", München, 1968, p. 28-30.

(8) P Sztompka: "Systems and Function" (part 1, Formal Framework for Theory Construction), New York, 1974.

(9) N Helburn: "The Development Process", in From Geographic Discipline to Inquiring Student (Final Report on the HSGP), 1970, p. 35.

(10) N Helburn, p. 34.

(11) N Helburn, p. 39.

Lessons:

For those who venture into the dimly lit corridors of curriculum reform, we offer the following:

1. Curriculum reform consistent with the best of both the discipline and the schools is possible. Schoolmen have nothing against powerful and significant ideas. Academics have no valid objections to materials in highly teachable form.

2. Real curriculum reform is neither easy nor cheap. It takes more time and devotion than anyone on the outside can understand to write good material that anyone can teach.

3. The inertia is enormous. People's images as well as their behaviour change slowly, if at all. Any one effort should focus its energies on the parts of the system it really hopes to change.

4. While we know a good deal about the ingredients of curriculum from learning theory, theory of instruction, and curriculum theory, we have no recipes for putting them together. Curriculum writing is an art form which involves

creative synthesis. Identifying error and correcting it distinguishes good projects from mediocre ones. As wide a range of imaginative people as possible should be drawn upon. A small group should edit toward a consistent whole.

5. Ends and means are inseparable. Content and process are both integral to school learning. Every activity has multiple objectives. Vested interests and sacred cows, both of the discipline and of education, must be dealt with summarily.

6. The extrinsic reward system of higher education discourages scholars from participating in curriculum development. The intrinsic rewards are so great that for many it does not take much experience before they are "hooked".

(12) R Geipel c.s.: "Wege zu veränderten Bildungszielen im Schulfach 'Erdkunde'", Studientagung, Tutzing, 1971, Stuttgart, 1971.

R Geipel c.s.: "Das Raumwissenschaftliche Curriculum-Forschungs-Projekt, Ergebnisse einer Tagung", Tutzing, 1975, Stuttgart, 1975.

(13) H Hendinger und G Hoffmann, Hauptprobleme der Unterrichts-Entwicklung, in Probleme und Verjahren der Curriculumentwicklung im RCFP. Arbeitsbericht über die Jahrestagung des RCFP, Goslar, vom 1-5 März, 1976, München, 1976, p. 31.

(14) J Rolfe, N Grenyer, A Kent: "The Oxford Geography Project", special: "The Rationale Behind the Project", in Teaching Geography, April 1975.

(15) See e.g. Teachers' Guide, Cities and people, GYSL. Schools Council, 1974.

See also: The Town and Country Planning Associations GYSL-special issue, London, May 1975, 28 pages.

B MacDonald and R Walker, A Project Profile, of GYSL in Changing the Curriculum, London, 1976, p. 51-75.

(16) G Hickman, J B Reynolds, H Tolley, A new professionalism for a changing geography, Schools Council, 1973.

(17) Curriculum design and development course team of the Open University: "Portrait of a national project", part 3, Geography 14-8. Milton Keynes, 1976.

(18) Portrait of a national project etc., project documents, p. 7

a The production of exemplar curriculum material

For the purpose of this paper, what matters are the criteria underlying the selection and structuring of materials. Briefly, these are:

i that they illustrate key themes, problems and concepts in geographical thought, bringing out changing interpretations and orientations together with the worthwhile in older ideas and methods;

ii that they clarify the role and importance of particular techniques and methodologies within a wider theoretical and philosophical framework;

iii that they entail bringing familiar but key concepts such as 'environment', 'action', 'cultural change' and 'rationality' into consciousness, so that enhanced understanding of these concepts may inform the student's understanding;

iv that, while presenting a clear logical framework of ideas, they lend themselves to flexible classroom use and to divergence of student interests in individual enquiry. The materials, for example, should present clear concepts, constructs, techniques, etc., but should also indicate how their meaning and application can be explored in a variety of contexts.

See also H Tolley and J B Reynolds, Geography 14-18: a handbook for school-based curriculum development, Schools Council, 1977.

(19) Alan Blyth c.s., Curriculum planning in history, geography and social science, Place, Time and Society 8-13, Schools Council, 1976, p. 91-110.

(20) Geography 16-19 Curriculum Development, The framework Teaching Units, in Project News, No. 4, 1977 University of London, Institute of Education.

(21) H S Verduin-Muller: "Leren met Beelden", diss., Groningen, 1964.

(22) For example

Tanner & Tanner, "Curriculum Development", New York, 1975.
(Specially in the chapters 2 and 4 the writers are dealing with the developments).

H M Kliebard, Curriculum Theory: Give Me a "For Instance" in Curriculum Inquiry, 6/4 1977, p. 264/265.

W Schöler, Geschichte des naturwissenschaftlichen Unterrichts, im 17 bis 19, Jahrhundert, Berlin, 1970 (chapters IV & VIII).

(23) D K Wheeler: "Curriculum Process", London, 1970. We have chosen for the figure as sketched by Wheeler in his "Curriculum Process".

H Taba, Curriculum Development: theory and practice, New York, 1962.

N Graves, Geography in Education, London, 1977, p. 100- p. 112 (see especially p. 105, Tyler's model of the curriculum process).

(24) R M Gagne, L J Briggs: "Principles of Instructional Design", New York, 1974, Chapter II: Designing Instructional Systems.

(25) J E Kemp: "Instructional Design", Belmont (Cal.), 1972. (see specially Part 1 and Part 2, p. 3-81).

(26) The projects are mentioned by code, number, by name, period, incl. participating students. Most projects are undertaken on request, if this is the case, the institution is also mentioned (after the projects' arme).

1. 'On European Population', Council of Europe (in cooperation with France and Western Germany), jan. 1975 - ;
Ruud van Dongen, Marian Groenevelt, Henk van den Heuvel, Ton Hoozemans, Liesbeth van Omme.

2. Landconsolidation in the River District, Land Division of the Ministry of Agriculture, jan. 1975 - april 1978;
Hans van Dinther, Leni Greeve, Wim Hassing, Ellen Röst, Ton Verheyden, Godelief Verschuren.

3. 'Mekong-Valley-Project', Oct. 1974 - Febr. 1976;
Jan Franke, Huub Kasbergen, Martin van 't Klooster.

4. 'The Third World and the Western World', Peace Corps The Netherlands, jan. 1975 - march 1976;
Marian Camfferman, Henk Ester, Fons van Kruchten, Wim Röst, Rene Sanders, Rene Vleugels.

5. 'Maghreb' - project, Ministry for Education and Science, Jan, 1977 - March 1978;
Martin Bierens, Jan van Doggenaar, Maarten van den End, Piet van Holsteyn, Dries van Ingen, Wouter Kaas, Peter Knoester, Frits van der Leye.

6. 'Luxemburg' - project (Social Geography), Jan. 1976 - March 1977;
Ad Baayens, Marion Denessen, Willy Klok, Aad Lindhout, Elly van Schieveen, Ans de Waardt.

7. I. 'Vlaardingen' - project, Town Council, sept. 1975 - dec. 1976;
Wim van den Ende, Truus Hilkens, Clementine Peyster, Hans van Scherpenzeel, Nelleke van Vliet.

II. 'Participation-Projekt Randstad -1', Prov. Council for Spatial Planning, Jan. 1976 - Dec. 1977, two research-staff members; no students.

8. '200-years Labour Market in Utrecht', Dutch Society for Industry and Trade, Jan. 1977 - March 1978;
Paul van den Boorn, Jan Kolkman, Winfried van Leeuwen.

9. 'Eindhoven' - project, Agglomeration Council, jan. 1977 - april 1978;
Marcel Bayens, Jan van Buul, Hans Dekker, Miek Hoogbergen.

10. 'Haaften' - project, jan. 1977 - april 1978;
Bets Lasseur, Maarten Hartman, Gert Heuveling, Rob Veldhuizen.

'Participation - Projekt - Randstad -2', Commission on the Modernization of the Geography Curriculum/Foundation for Curriculum Development, July 1977 - two research staff-members; since jan. 1978 participation of the students: Jan Beyer and Nelly Lemmens.

Since jan. 1978 one new project is undertaken:

9. II. 'Eindhoven' - II, Agglomeration Council; Liesbeth Heintzberger, Wim Otten, Ron Smit, Marian Weusink, Gerrit Worm.

(27) B S Bloom,et al,Taxonomy of Educational Objectives, Cognitive Domain, London, 1956.

D R Kratwohl,et al,Taxonomy of Educational Objectives, Affective Domain, London, 1964.

Some educational geographers who paid special attention to the application of the objectives' taxonomy are listed here:

T Bennetts, "Objectives" in R Walford, c.s. New Directions in Geography Teaching, London, 1973, p. 152-174.

N J Graves, Geography in Education, London, 1977, p. 78-99.

D Hall, Geography and the Geography Teacher, 1976, p. 72 en p. 74.

N Helburn, The Educational objectives of High School Geography, in The Journal of Geography, May 1968, p. 274-281.

W E Marsden, Evaluating the Geography Curriculum, Edinburgh, 1976, p. 9-46.

J C van Westrhenen, Aardrijkskundige Onderwijsdoelen, Amsterdam, 1976 (esp. Chapter IX).

THE IMPORTANCE OF NOMOTHETIC GEOGRAPHY FOR SCHOOL-GEOGRAPHY

by

J van Westrhenen

and

Gerda Meijer

Geografisch en Planologisch Instituut
van de Vrije Universiteit

Amsterdam, 1978

CONTENTS

I. The relation between conceptual structures and cognitive development
By: J van Westrhenen

1. Introduction
2. The relation between cognitive development and the nature of the instructional substance
3. The contribution of school-geography to cognitive development
4. What is conceptual learning?
   4.1. Objects
   4.2. Class concepts
5. The relation between the problem solving character of instruction and conceptual learning
6. The function of concepts and of conceptual structures
7. The importance of nomothetic geography for school-geography

II. A spatial system as an example of a conceptual structure
By: G Meijer

1. Elements of a spatial system
2. A spatial system as a conceptual structure
3. Concepts and relations between concepts
4. Areas as localized objects in a spatial system

ANNEX 1 Conceptual structure

ANNEX 2 Elements of a conceptual structure

ANNEX 3 Content-analysis of a text from a school-book

ANNEX 4 A classic example of working with geographic concepts

I. THE RELATION BETWEEN CONCEPTUAL STRUCTURES AND COGNITIVE DEVELOPMENT

1. Introduction

Teaching - and therefore school-geography - aims at reaching particular instructional objectives. Generally, these instructional objectives define what knowledge and skills the student has to possess at the end of a given period of instruction, for example, a year's course, a teaching-unit or even a single period. A distinction is made between objectives of a cognitive and an affective nature. Cognitive objectives refer to intellectual action as opposed to affective objectives, which refer to emotional life and development.

Clearly human actions are determined by norms and values related to affective objectives. However, without loosing sight of the importance of affective objectives, special attention will be paid to the realization of cognitive objectives in school-geography.

2. The relation between cognitive development and the nature of the instructional substance

The cognitive development of the child proceeds through learning. Learning implies that the child goes through a process which leads to new cognitive possibilities being opened up, which would not otherwise have been accessible to him (Van Parreren, page 12). It cannot be said, however, that every learning-process contributes to the cognitive development.

Generally, education can be expected to get such learning-processes going in the student by offering a specific content, such that cognitive development is stimulated. In this context the viewpoint of the Russian educational psychologist Vygotsky is of importance. He distinguishes two levels of cognitive development. Firstly, the level of factual development. This relates to the previously acquired knowledge of a child, with which it can operate independently. This level of cognitive development may be measured by means of an intelligence test. Such a test makes, as it were, an inventory of what the child can achieve on its own.

Vygotsky argues, however, that this level can be exceeded when children are being helped by adults to solve problems which they can almost master on their own.

By instruction, explanation and a joint approach of the set problem with the adult, the pupil will exceed the level of factual development. According to Vygotsky similar exercises, which the child can solve already with the help of an adult, but not without that help, belong to the second level, which he calls the "zone of the nearest development". Education should not aim at the level of factual development but at the zone of the nearest development (Van Parreren, page 13). In other words: education has to lead the way to further cognitive development. Only then, are the frontiers of the level of factual knowledge being shifted and possibilities of development can occur. In this way a pupil will get access to new ways of thinking. Similarly the knowledge to be imparted will need to be presented to the pupil in a problem setting way. If the pupil is to acquire the skill of solving the set problems, the instructional content will have to be aimed at conceptual learning.

3. The contribution of school-geography to cognitive development

An investigation into the nature of the content of geography text-books for secondary education has shown that more than 70% of the instructional substance is of a factual nature. Moreover, more than 90% of the questions on cognitive behaviour asked in the books (i.e. on the kind of thinking processes which the pupil goes through in answering the questions) appeared to score in the two lowest categories of Bloom's taxonomy. The latter implies that in the main the pupil hardly arrives at conceptual thinking which is needed for problem solving. The conclusion is that the contribution of school-geography to the cognitive development of pupils in secondary education cannot be valued highly. It is sometimes assumed that the introduction of educational technology will change school-geography. It cannot be denied that the radical changes in the field of educational technology have influenced the manner of teaching. The wide application of such media as film- and slide-projector, the use of video-equipment, the ever increasing availability of richly illustrated, colour-printed text-books, provide a means of enlivening geographical education. Yet, such technological innovations in education often depend on books with an unchanged instructional content. Consequently, in spite of the rapid development of educational technology, its application does not lead to changes in the instructional content of the curriculum which are so necessary. Therefore, one may wonder in how far the present

instructional content contributes to the cognitive development of pupils. In the following paragraphs an attempt may be made to answer the question as to whether the geographic sciences as they have developed during the last thirty years, provide the means to cognitive development without loosing sight of the fact that the objective of geography is aimed at the acquisition of insight into problems socially relevant to the pupil.

4. What is conceptual learning?

Briefly an outline is sketched of what is meant by conceptual learning and what relation this has with the ability to solve problems.

Just like Vygotsky many educationists are convinced of the importance of concepts and concept-structures. They argue that a teaching-unit, which is based on a disciplinary conceptual structure not only stimulates the development of more complex thinking processes, but also provides the learner with a set of instruments with which he can arrange and understand reality. First, it is necessary to answer the questions: what, is a concept and what is a conceptual structure respectively?

It should be self-evident that conceptual learning does not deal with the spontaneous development of conceptual behaviour, but with the development and acquisition of scientific concepts.

4.1. Objects

The first step is to impose, as it were, a rational structure on the reality around us. We start to experience this reality as an accumulation of objects (for instance villages and towns), which can be distinguished from each other on grounds of particular characteristics (for instance the number of inhabitants). By identifying and perhaps measuring these characteristics the objects become comparable. An incorrect impression could be created by supposing that those objects are part of total "reality". Yet they are 'identified' by the investigator because of a particular scientific approach. Thus, the objects studied in geography will, in the ultimate analysis, be reducible to elements localized on the earth's surface. Such objects in geography can be of an elementary nature,

for example a household or a shop, but also very complex, for example a region or a nation. Those objects form the units of investigation. Because geography covers several scales, the objects studied can vary to a high degree. So the distinction between the objects depends on the fact that we learn to see the objects as a collection of different attributes. Some attributes which the geographer is especially interested in, are, for example, the location of an object and the distance of one object to other objects. This distance can be expressed both in kilometres (absolute distance) and in units of time, cost or otherwise (relative distance). Usually those attributes are related to other attributes of the objects studied. The more accurately measurable these attributes are, the more accurately certain statements can be made.

4.2. Class concepts (see annex 1)

Several objects with similar attributes can be isolated; in fact this is a process of analysis and classification. A concept or a class of objects is nothing more than an appellation for something which several objects have in common. The concept functions as a label for a collection or class of objects, for example the word 'settlement'. By means of those concepts, objects which belong to a particular domain, are arranged or divided into different classes, depending on the method of classification. This way the concept 'settlement can be sub-divided into the classes: hamlet, village, town and metropolis. This takes place on grounds of particular attributes which the element of the classes hamlet, village, town and metropolis have in common.

Such a classification in itself forms a conceptual structure. The objective aimed at with the composition of such classifications is not only to group the objects but rather to arrive, by means of such 'concept-pyramids', at generalizations or regularities which enable phenomena to be explained and perhaps predicted. When a particular classification no longer serves a purpose, it can be replaced. For example it is no longer of any use to divide settlements into villages and towns on the basis of the attribute of city rights. By well-chosen class concepts objects are so grouped that important inter-relations, over and above the relations within the classifications, come to light. Thus, a collection of objects, for instance settlements, can be classified

according to the number of inhabitants and also according to the quality of the available services. In this case, the two classifications lead to the discovery of a principle or generalization, i.e. that there is a relationship between the number of inhabitants, the number of specialized shopfunctions provided by a settlement. Such generalizations are at a higher level than the relations within the classification. For these internal relations one can merely formulate assertions such as: villages are settlements with a number of inhabitants lower than ..... . The interrelations between different classifications of similar objects may lead to another kind of conceptual structures (see annex 1). One of the important, geographical attributes location has been mentioned. If it is a matter of a collection or class of localized objects we can speak of spatial distribution. Just like two classifications of objects according to a particular attribute, two spatial distributions can be mutually related bringing about a generalization or regularity which exceeds the separate distributions (classifications). Such a relation between two spatial distributions is indicated with the term spatial association.

5. The relation between the problem solving character of instruction and conceptual learning

In the preceding paragraph (see also annex 1) it has been explained that facts are formed because, on the basis of one or several attributes, an object is linked up with a class concept (for instance: Amsterdam is a town) or two objects are connected by means of a relation (for example: Amsterdam lies on the Amstel). Description can be considered as the (systematic) establishment of facts. Consequently in a truly descriptive text, mutual relations between the sentences are usually missing (see first part of annex 3). Generalization is a connection or a relation between concepts. Some examples are:

> rivers flow to the sea,
> department stores are found in urban centres, in proportion to the increasing distance to the equator, temperature decreases.

Generalizations form important material for giving explanations. Explaining implies that a fact is related to a particular generalization on the basis of

which a conclusion can be drawn. In text-books an explanation will usually be apparent from the relation between a number of sentences (see part 2 annex 3). The use of words like: that is why, because, generally point to an explanation. Problem solving means that a pupil can explain or predict (unfamiliar) factual situations on grounds of generalizations which he has at his disposal. The learning of such generalizations is the objective of conceptual learning.

6. The function of concepts and of conceptual structures

To solve questions bearing on problems, one must have generalizations at one's disposal. It has been shown that a generalization comes about in a number of steps, viz.:

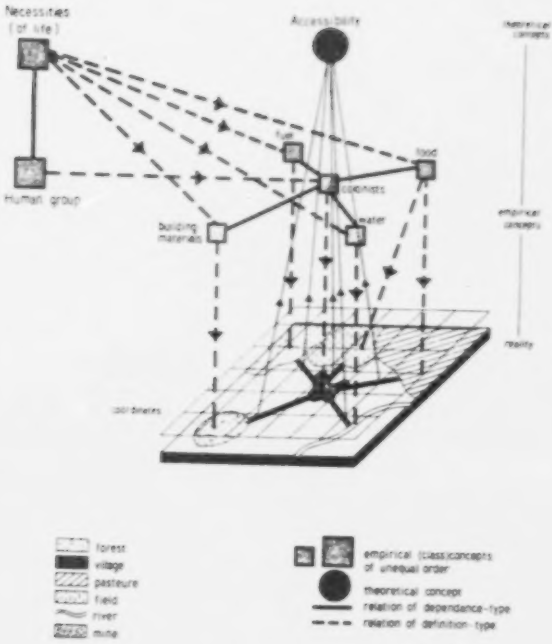
1. the distinction of objects by the recognition of particular (measurable) attributes (for example the number of inhabitants of villages and towns);

2. the arrangement of the same objects on grounds of different attributes into several classes (for instance settlements arranged according to the number of inhabitants and according to specialized shop functions);

3. relating two classifications by which the generalization is discovered (for example: in proportion to the increase of the number of inhabitants, the number of specialized shop functions increases).

The way in which scientific conceptual structures come about, shows great similarity with the way in which knowledge acquisition takes place in the educational process of learning. Therefore, one can plead for a curriculum which chooses the logical structure of the discipline(s) for a starting-point. Such a logical structure consists of the scientific concepts and principles of a particular discipline. The scientific conceptual structures provide the frame of organization for the subject-matter to be chosen for the development of such a curriculum. These conceptual frame-works do not form the educational aims but serve to structure the instructional content in such a way that the pupil discovers one or more generalizations with which (on the basis of the objectives selected) he can explain and predict the phenomena which are meant to be useful

Figure 1


Necessities
(of life)
Accessibility
theoretical concepts
fuel
food
Human group
colonists
empirical concepts
building materials
water
reality
coal basins
forest
village
pasteure
field
river
mine
empirical (class)concepts of unequal order
theoretical concept
relation of dependance-type
relation of definition-type

to him. In one of the first chapters of the fourth volume of the text-book series 'Location and links' called 'Settlement', the pupil is asked to make a location-choice referring to an Anglo-Saxon settlement in the early Middle-Ages by means of a game or simulation. (Walker, 1974, pp. 7-10). The conceptual structure underlying it, is a highly simplified location-model which has been operationalized in a simple manner. The pupil is confronted with a coherent totality from which he must derive some generalizations.

Moreover, it appears that in the later chapters this location-model fulfils a function in a more complex manner and on a higher level of abstraction, among other things in the location of industrial firms. In the text preceding the game the following statement can be found: "Communications were difficult and all the needs of the community had to be supplied from the area in the immediate neighbourhood of the village itself" (Walker, 1974, p.7). In it we can read the following generalization: a group of human beings provide for its very subsistence. In this sentence several conditions are also mentioned on which this generalization is based.

We find the concepts 'human group' and 'necessities of life' in the generalization.

Between these two concepts there is a dependence-relation. The statement mentioned forms the starting-point for the geographic approach of the location-problem brought forward in the simulation. Figure 1 tries to represent the underlying geographic conceptual structure. First these two concepts (abstracta) in the generalization are unravelled into empirical concepts of a lower order, viz.: water, food, fuel and building-materials. The concept 'human group' is reduced to the concept: family-group of Anglo-Saxon colonists. Just like the empirical concepts of a higher order, these empirical concepts of a lower order are also related by means of dependence-relations. The relations of the higher to the empirical concepts of a lower order are of a taxonomic nature. Secondly these empirical concepts and their relations from a geographical viewpoint are related areal concepts, which means referring to objects forming a continuous part of the earth's surface, like fields, meadows, quarries, woods, rivers and villages. An important

attribute is their absolute location which - as Figure 1 shows - can be determined among other things by means of co-ordinates. The dependence-relations between a village and other artefacts is made measurable by means of the absolute distance, i.e. the spatial relations between the objects that are localized on the earth's surface.

In the third place this totality is fitted into a coherent geographic conceptual structure. On these grounds predictions of the expected location of the village may occur. The latter happens with the aid of the theoretical concept of accessibility. To be able to use this conceptual structure, which consists of a number of empirical concepts and the theoretical concept of accessibility, in a concrete situation it is required to make the concepts concerned measurable. It can be assumed of the concepts: river, meadow, field, forest and quarry, that the pupil is familiar with the local attributes of the class concepts concerned on a low level of abstraction. However, this does not hold good for the concept 'access-ibility'. That is why we need a working-definition, in which it is indicated what actions must be performed to be able to use/handle this concept in the concrete situation concerned. This concept can be made measurable by making use of several spatial concepts of a lower order. This concerns the two spatial concepts 'relative location' and 'relative distance'. For each of the localized elements mentioned: river, meadow, field, forest and quarry, the distance from the possible location is measured by means of the relative distance. This is being calculated by means of the multiplication of the distance in kilometers, with a number which is attributed on the basis of the frequency of visits to each location. This indicates the number of times that a person has to go to each of the resources mentioned. Water, for instance, is needed several times per day, so that the highest number is attributed to it. Building-materials are only needed sporadically so that the lowest number is attributed to it. Similarly, for the remaining variables a number is also determined. Subsequently for each variable the relative distance is calculated by multiplying the distance (in kilometres) with the attributed number. Now, the results of the various variables are added. This sum indicates the value of accessibility of the possible location. This process is repeated for the

remaining two possible locations, the location with the best accessibility (with the smallest total relative distance) being chosen. This deterministic model can still be turned into a possibilistic direction, as the text-book prescribes, by letting the choice also be determined by throwing the dice. The place with the most favourable location is being chosen when one, two or three is thrown, the next best when a four or a five is thrown and the least suitable location when the throw is six. The concept of accessibility as such is not mentioned in the text-book. The measurability of the concept, however, enables the pupil after the simulation has ended, to conclude that the choice of a location does not depend only on the actual distance. The number of times that the resources needs to be reached must be used, is also a determining factor in the location of the settlement. This simulation at the same time illustrates how the use of quantitative concepts in a simple way contributes to an accurate determination of the measure of accessibility of a settlement.

A second function which the conceptual structure can fulfil is to provide an instrument to analyse the existing units of subject-matter. As has already been said, a conceptual structure is composed of a network of mutually related concepts. Such a whole can also be defined as a network of statements because the relation between the objects and/or concepts provides a statement (fact or generalization). School text-books consist of a collection of related or unrelated statements. It can be determined to which type of conceptual structure they pertain (see annexes 1 and 2). Moreover, it can be determined how far we can speak of a geographic conceptual structure. After having analysed a text, it can be judged whether the result of this content-analysis corresponds with the instructional objective which was aimed at by means of the subject-matter in the text, or whether additional steps in the instructional process are required. The logical construction of the conceptual frame-work provides this possibility. This method is demonstrated in the analysis of a page from a text-book (see annex 3).

7. <u>The importance of the nomothetic geography for school-geography</u>

At present we only want to go briefly into the matter of specific geographic conceptual structures. It goes without saying that they have been developed to a great extent by

the nomothetic approach to geography. This type of geography, whether in a regional context or not, can refer both to the localized objects or artefacts and to the spatial activities of the action-units* housed within them. A conceptual structure which relates, for example, to the spatial relations between objects localized on the earth's surface, is the location-model.

Conceptual structures, on the contrary, which relate to the spatial activities of action-units are for example spatial interaction and diffusion models. Conceptual structures, finally, which relate both to localized objects and to spatial activities of action-units lead to spatial systems. For a more extensive description of the several geographic conceptual structures we refer to Section II. Here it is sufficient to establish that the nomothetic approach to geography has led to a rapid development of geographic conceptual structures.

The preceding argument does not at all imply that the themes which present-day school-geography brings forward, have to be thrown overboard. The same themes can be structured more conceptually based on nomothetic geography. In this way the pupil can be provided with a geographic set of instruments (i.e. generalizations) by way of socially relevant problems, with which, according to his age and intellectual capacities, he can, not only describe phenomena in his direct environment and outside it, but he can also to a certain extent explain and predict them. Only then, will school-geography be of social use, and provide an essential contribution to the cognitive development of the pupil.

II. A SPATIAL SYSTEM AS AN EXAMPLE OF A CONCEPTUAL STRUCTURE

1. Elements of a spatial system

In the preparation of lessons, a spatial system - considered as a conceptual structure - can be taken as a starting-point for structuring the subject-matter of the teaching-units. Every spatial system consists of a number of objects localized on the earth's surface, in which elements of an action-unit are housed, and a number of channels along or through

* See II for the meaning of an action-unit.

fig.2

a system

chann

localized object

id. of greater importance

fig. 3

five areal or spaces

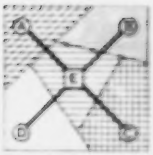


fig.4

a spatial system

spatial attribute 1
spatial attribute 2
spatial attribute 5
spatial attribute 4
spatial attribute 3

areal attributes

which streams of people, goods and ideas are mutually transported or exchanged from the objects (interaction). By action-unit we mean house-holds, trades and industries, institutions.

In itself an action-unit is a system because interaction occurs between its elements. It becomes a spatial system because the objects in any case, but usually the channels as well, are localized on the earth's surface.

So, knowledge about the form of organisation, the objectives and the means of action-units is needed. Beside this, knowledge is needed about the attributes of the space in which these action-units operate. These attributes can be of a physical,social, economical, political or legal nature. We need, however, not be concerned with <u>all</u> attributes, but only with those which are seen as relevant by the action-units. Usually these attributes are perceived as favourable or unfavourable. Finally we need some knowledge about the spatial interaction which occurs between the participants or the participating elements of a spatial system.

Spatial interaction always occurs between localized objects along channels. These objects and channels consequently can be considered both as elements of a system and as elements of the space in which they are situated. Moreover, it becomes a spatial system because the objects and channels derive some attributes from the space in which they occur.

Examples of physical attributes are for instance the climate, the soil condition, vegetation-types; of political attributes the kind of regime ruling, the laws in existence; of economic attributes, land values, price-agreements; of social attributes, the working conditions imposed by labour-unions. Each of these attributes separately can influence the way in which action-units are organized and perform their activities.

In Figure 4 it can be seen that the localized objects have the attributes of the spaces in which they are localized. A differs from B, B from C and so on. The same way the channels E-A, E-B and E-D will not be identical because they cross areas which possess unequal attributes. This may influence the capacity, the cost of transportation and the ease with which it is possible to travel along these roads. It may also influence the use or function of the localized objects: in C things

cannot be done, which can be done in A. Further the output or profit, the consumption or waste may be influenced by these spatial variation in attributes. The political and socio-economic attributes of space influence the participants of such an localized action-unit. Purchasing-power, spending-behaviour, rate of schooling, religion, profession, all such attributes which can be ascribed to an area for the inhabitants of that area, make the inhabitant of the localized object A essentially different from the one in B.

Spatial attributes are - except for physical features - derived from immaterial phenomena and applied to an area. They are always expressed in terms of density or average. In such a way they can be called areal concepts.

2. A spatial system as a conceptual structure

One may wonder how such a spatial system can be 'translated' into a conceptual structure. The answer seems very simple. It is in a distribution or association of localized objects in a network of channels, because only in that way do the action-units become manifest in a map.

It can be stated that

> every localized object has a particular WEIGHT, which across a particular DISTANCE exerts INFLUENCE on or INTERACTS with other localized objects, which in their turn have a particular weight of their own and again lie at a certain distance from each other.

Essential concepts in this definition are Weight, Distance and Influence or Interaction.

Distance can be taken as the absolute length of a channel (ABSOLUTE DISTANCE), but normally this is of little use, because interaction consists of goods, people or ideas. The speed, cost or ease with which the action-unit is able to cross the distance, is a more important factor in this, than the actual length of the channel. In a spatial system distance is always the RELATIVE DISTANCE, which can be measured along the length of the channels.

Interaction does not only refer to the transported or exchanged VOLUME, but also to the FREQUENCY with which it happens.

Weight is a much more awkward concept. Obviously, an object has weight as one of its attributes. To many this is a difficult idea because weight can be composed of so many components. Every object has a form, a function in the sense of content or output and a surface. Each of these attributes contributes to the weight, as perceived by an action-unit which is or will be present within the localized object. The object also has a location. Again the location itself can have attributes which may contribute to the weight of the totality: the localized object. Thus land value (location attribute in a narrow sense) and the surrounding environment (location attribute in a wider sense = areal attribute) can be weight-factors as well. The relational attribute in the sense of number of channels connecting the localized object with other objects, again is an attribute of the object itself and usually called CONNECTIVITY.

ACCESSIBILITY is one other relational attribute. It cannot be added to the weight as it is mostly used as a synonym for RELATIVE DISTANCE. As such accessibility is a measure for distance. This however can only be measured when it is known which means of transport the action-unit is using. The latter usually is indicated by the term mobility. Therefore we can say that accessibility is a concept which consists of two other concepts, viz. distance and mobility. Distance can be measured on a map through the length of the channels, mobility has to be told through information about the action-unit itself.

Both interaction (influence), weight and 'distance to' are matters which are mutually related. For it can be stated that the influence of a localized object is indubitably larger in proportion to the increase of its weight, or that the influence of a localized object probably decreases when the other localized objects come to lie farther off.

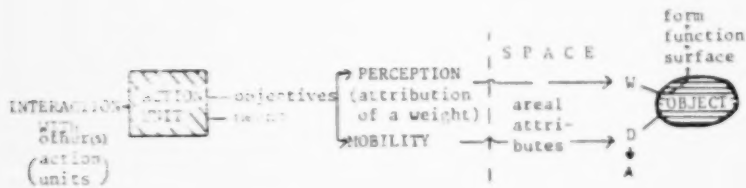
This is a very primitive way of formulating a conceptual structure. Primitive because we are omitting the processes of increase of weight or change of distance which always happen to be the result of changes in society. However, it <u>is</u> a way of tracing these changes, since this manner of formulating compels us to make vague phenomena measurable. Moreover, it is

a way of predicting the consequences of a change or of explaining them afterwards. For if you know one thing, for instance an increase of weight, something can actually be said about the 'influence on' and the 'distance to'.

3. Concepts and relations between concepts

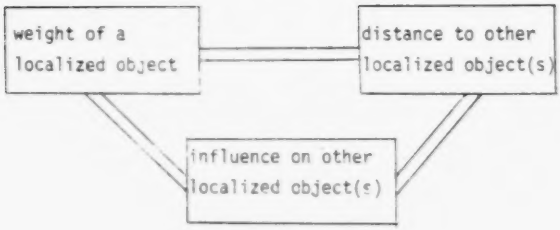
The relation between action-units and objects and space was shown in Figs. 2, 3 and 4.

The manner in which the concepts Weight, Distance and Influence or Interaction are to be coupled with an action-unit, an object and space is shown in the following scheme:



in which W = weight = the summation of object and areal attributes
in which D = distance in length between one or more objects
in which A = accessibility, a concept combining the means (money and time available for transportation), the mobility (availability of vehicles for certain types of goods, or persons or ideas), areal attributes and distance.

This reasoning leads to the following very simple conceptual structure:



Here the relations have an explanatory nature, i.e. if a change occurs in <u>one</u> of the three attributes of an object, this automatically has its consequences for the other objects belonging to the system.

The concepts and their mutual relations can be represented in a formula as follows: $I = f\left(\frac{W}{D}\right)$.

The distance is usually small when interaction is large. The distance may be large when interaction is small.	$D = f\left(\frac{1}{I}\right)$
Interaction is usually large when the distance is small. Interaction is usually small when the distance is large.	$I = f\left(\frac{1}{D}\right)$
Interaction is large when the differences in weight are large. Interaction is small when the differences in weight are small.	$I = f(W)$

If, however, we make the concept Weight measurable as Connectivity - the number of lines that meet in one point (object) - the following generalizations hold good:

- the larger the connectivity of a localized object, the more localized objects will experience its influence (1A).

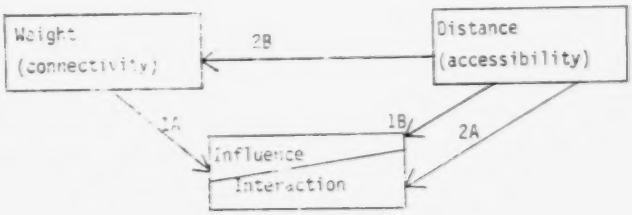
- the larger the accessibility of a localized object with respect to an other object, the faster the influence of one on the other will be noticeable (1B).

Furthermore it also holds good:

- the larger the absolute distance between two localized objects, the lesser the interaction will be. This is a form of distance-decay (2A).

- the larger the distance between <u>one</u> fixed localized object and others, the smaller the weight of those others. This is also a form of distance-decay (2B).

This may be illustrated in the form below:



The direction of the arrows is essential. For they can only be read and filled in if fixed data are available, viz. if the connectivity of the localized objects is known and the distance between them; in short: when there is a pattern of a spatial distribution or of associations.

Therefore, the possible direction and speed of diffusion can be predicted; the way in which the process could have occurred in the past can be explained. The same holds good for distance-decay.

The arrows can also be reversed!

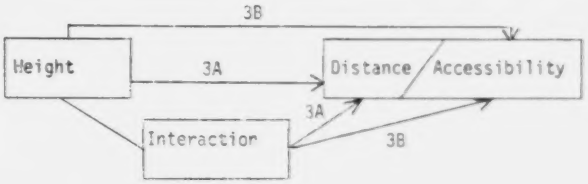
For the interaction between two localized objects may increase, as a consequence of a change in weight, for instance when a grocer's becomes a supermarket ($I = f(W)$), or when the individual households prefer buying much once a week instead of going to many shops every day. In the latter case the interaction - behaviour leads to change in weight: $W = f(I)$.

For example specialisation causes increases and differentiations of weight. Somehow the distance between them must be made small. One solution is to lessen the absolute distance, i.e. one of the objects may have to change its location. This is the process of re-location (3A). The other solution is to change the relative distance so that the accessibility between the localized objects is enlarged (3B). Migration is an instance of re-location; commuting is an example of decrease of relative distance.

With re-location the areal attributes undergo a change, viz. a change in density as one or more objects will disappear from a certain distribution. For example, Household A disappears from a village to find work in town and to limit the time of travel to a minimum; Household B disappears from a town to be able to run around with the dog daily in the forest around a village. In short the re-location of the objects in a spatial system leads to changes in the space in which they are localized. There may be an increase or decrease in density, even disappearance may occur.

With an increase of the accessibility the spatial distribution of the localized objects remain the same, but the distance between them is decreased in time, cost or trouble.

The above mentioned relationships may be illustrated in the following way:



Of course the opposite also holds good. When, owing to causes lying outside the system, the attributes of a space, the absolute distance or the accessibility changes, this influences the interaction between the elements. When for instance employment disappears

from the space in which family A is living, because it has not rained for the last ten years, automatically, the weight of the farm A decreases and increases elsewhere, re-location or commuting will be considered.

When employment moves (for example through decentralization) the absolute distance will increase and re-location or commuting will be considered.

4. Areas as localized objects in a spatial system

One has the tendency to relate localized objects to artefacts only. It is relatively simple to define the shape of a building or field, to measure its output, etc. It is rather difficult to consider such building as an area or a system in itself. In the latter case one has to divide the building again into elements between which there is a certain type of interaction. Even more difficult to visualize is the mental construct of a region as an object, localized in a space. However towns, regions or countries can be seen as localized objects, i.e. elements of a spatial system, as soon as one links them with other towns, regions or countries. These links should be real interaction channels, through which a measurable number of goods, people or ideas are passed from the one to the other. If interaction from one object to others is not taken into account, one should not call the distribution of localized towns, or other objects, a system but only an areal attribute of the area in which these object-areas are situated.

As objects these areas do have attributes, but not areal attributes! Towns - seen as objects - only have object-attributes. The difference between the areal and object attributes of, for instance, a town, are easily distinguished: the town as an area has a population-density, the town seen as an object a number of inhabitants. So the areal attribute is a number of persons per square kilometre, the object attribute the real number of persons living in a town of a certain number of square kilometres.

From density data one cannot derive, for instance, the demands for food or services. This can only be done from information of the actual numbers. The greater the demand, the greater will be the interaction between towns. In this generalization the weight of the object 'town' is defined as demand.

As demand is not only dependent on the number of inhabitants, but also of the economic conditions, prevailing customs and preferences of the country or region in which the town is situated (areal attributes of the country), so the economic and cultural space in which the town exists, has to be added to the weight of the town, i.e. the demand for food and immaterial goods.

Another possibility is a dissimilarity in the economic structure of two or more towns as, for instance, is the case with industrial towns and seaside-resorts. Though the number of inhabitants may be the same, the weights of these towns will be different.

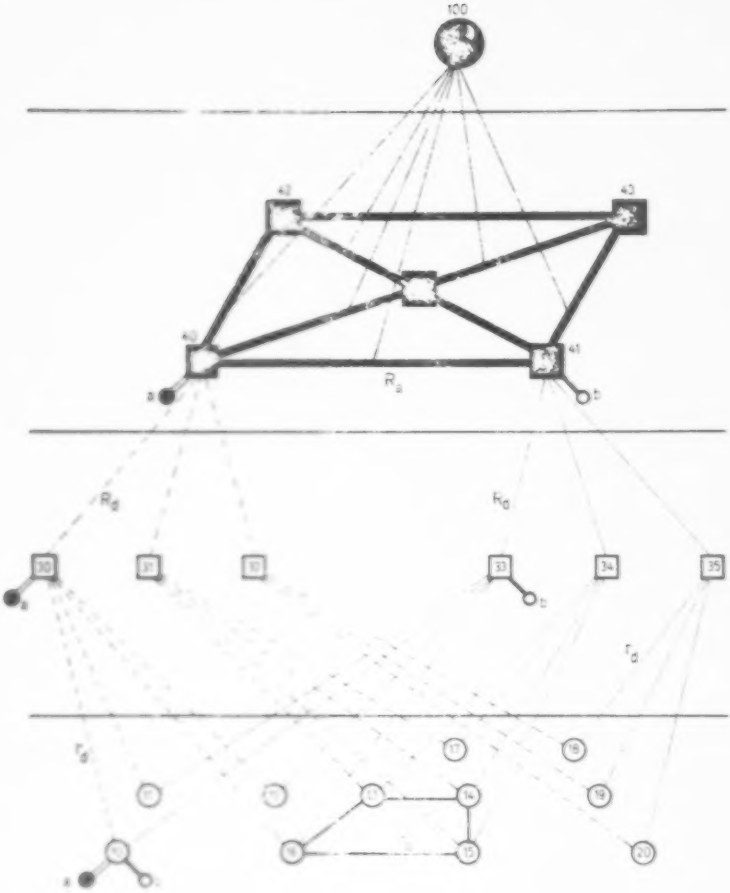
It seems attractive to introduce spatial systems in school-geography, because pupils will be able to arrive at the two highest levels of Blooms' taxonomy. The conceptual structure inherent to every spatial system, will take care of that.

One should be aware, however, that every spatial system needs to be very carefully defined, its localized objects explicitly mentioned, their weights - given a certain problem - determined and the types of interaction, originating from these objects expressed in volume and frequency of the goods, people or ideas which has to be transported.

This task can be a challenge, but will not be easy to accomplish.

LITERATURE

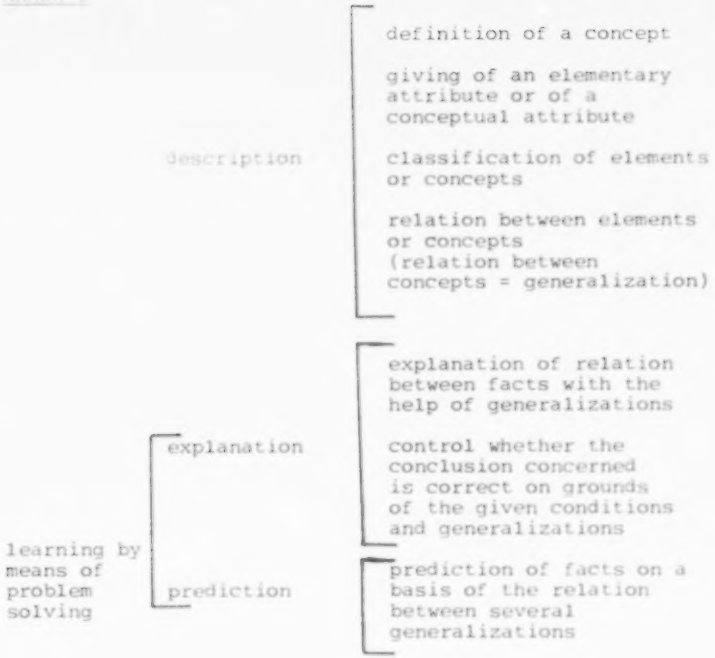
Meijer, G	De paden op, de lanen in, vooruit .... ! V U, Amsterdam 1977
Parreren, C F van	Denken; teksten en analyses Sovjet psychologie. H D Tjeenk Willink, Groningen 1975
Westrhenen, J van	De toetsing van onderwijsdoelen; een empirische studie naar de functie van begrippen en begrippenstrukturen in het onderwijsleerproces. Wolters-Noordhoff, Groningen 1977


100
42
43
40
41
a
b
R_a
R_d
k_d
30
31
32
33
34
35
r_d
r_d
17
18
19
20
a
b

LEGEND TO ANNEX 1

10-20	objects or elements which are distinguished on grounds of one or more attributes
a and b	attributes of measurable objects
30-35	class concepts or collections
40-44	classes of objects with different attributes between which there is a relation
r_a	dependence-relation between objects
R_a	dependence-relation between concepts (generalization)
r_d	non-dependence-relation between an object and a class concept (fact)
R_d	non-dependence-relation between class concepts (empiric generalization)
100	theoretical concept

ANNEX 4


definition of a concept
giving of an elementary attribute or of a conceptual attribute
description
classification of elements or concepts
relation between elements or concepts (relation between concepts = generalization)
explanation of relation between facts with the help of generalizations
explanation
control whether the conclusion concerned is correct on grounds of the given conditions and generalizations
learning by means of problem solving
prediction of facts on a basis of the relation between several generalizations
prediction

ANNEX 3

Latin America

17 Physical condition

Surface features

The Mexican highland is the continuation of the Imperial Valley and the Colorado Plateau.| Here the chains of the Sierra Madre form the fringe mountain ranges.| The mainland of Central America mainly consists of mountainous territory.| The islands of the West Indies are the remainders of a disintegrated and partly sunken mountain.| Both on the outer borders of the West Indian islands and in the Caribbean Sea great sea-depths are measured.|

Just like in North America a range of young high mountains (Cordilleras de los Andes) are to be found and plateaus in the east. In between extensive lowlands can be found.|

The whole western rim of Latin America is characterized by active vulcanism and the frequent occurrence of heavy earth-quakes (see map 150A of the atlas).| The same holds good for the Windward islands in the West Indies.|

Climate and vegetation

In contrast to North America the largest part of Latin America lies in the tropical atmosphere.|
The climate is largely dominated by the trade-wind system.| Monsoons do not occur.| In the narrow temperate part of South America there is on account of the high mountain ranges of the Andes a clear difference between the marine climate of Southern Chile and the continental climate of Argentina.| The tornado's or hurricanes around the Gulf of Mexico often work havoc in the West Indies as well (see map 130A of the atlas).| In Latin America the relation between climate and vegetation can be seen clearly again.| The tropical rain forests in the Amazon region are called selvas.| On either side of these are the savannas: the Llanos in Venezuela and the campos on the highland of Brazil. The steppes in Argentina are called pampas.|

10 Along the east coast of tropical America there is a mangrove vegetation (see map 163 of the atlas).| By this we understand a vegetation of plants with prop-roots which are able to stand up against salt water.|
12 Sedimentation is furthered this way.|

Analysis of a school-book text

With the aid of the annexes 1 and 2 the statements of the accompanying school-book text were analysed and denominated. On the basis of this the instructional objective actually aimed at can be formulated. The numbers refer to the statements.

Surface features

- relation between objects	1
- classification of objects	2,3,4,7,8,9
- giving an object attribute	5,6

conclusion:	the text consists of a series of statements of a factual nature, which show no mutual relation
instructional objective:	the reproduction of facts concerning the physical environment of Latin America

Climate and vegetation

- classification of objects	1,2,3
- comparison of objects according to attribute	4
- relation between objects	5
- relation between concepts	6
- definition of a concept	7,8,9

conclusion:	in contrast with the former paragraph we find a faint relation between some statements in the latter part of the text (6 and foll.). There is talk of a relation between two spatial distributions although this is badly expressed in the text.
instructional objective:	have the pupils establish a generalization: the spatial association between areas in Latin America according to the characteristic climate and vegetation.

GEOGRAPHY IN THE CURRICULUM FOR THE 16-19 AGE GROUP IN DENMARK

Rikard Frederiksen

DENMARK

GEOGRAPHY IN THE CURRICULUM OF THE 16-19 YEARS AGE GROUP

Today's young adult at school meets challenges quite different from those twenty or just ten years ago. Today the qualifications, given in the school on specific subjects, last only a short time. Technology is running ahead at a pace that just cannot be followed by the educational system. What we learned a year ago is oldfashioned next year. Therefore the curricula must now emphasize not the qualifications of special knowledge and skills, but rather the qualifications of general knowledge and general skills. Ability to learn and ability to adapt, general views and analytical power are now much more important than a large sum of specialized knowledge.

As in other countries, the Danish educational system has, through a number of reforms, undergone thorough changes in order to secure its rationality in a changing society.

The New Geography Curriculum

The teaching of geography to the 16-19 years age group has changed considerably in Denmark the last ten years as a result of these reforms.

Before the 1971 upper secondary school reform, the teaching of geography was, to a large extent, a qualification of specific knowledge and heavily orientated towards physical geography. Elements of climatology, geomorphology, geology and oceanography were central in the training, and much attention was given to the descriptive geography.

The reform put an end to this, as the following excerpt from the ministry of education notice suggests: "... the students must work with analysis of regions in the developed as well as the developing countries, and most weight should be given to the disciplines of human geography, whereas physical geography is only to be taught to the extent necessary for the understanding of the former."

The emphasis on special knowledge has given way to teaching more general knowledge and skills, stressing the connections between the different fields of geography and emphasizing human geography as central for the understanding of the functioning and cooperation of countries and societies. But still the inter-relationship between nature and society is important.

There is very widespread satisfaction among Danish geographers with this reform. And it is generally acknowledged that the new profile has strengthened geography's position in the Danish high school.

Problems of the New Curriculum

But, of course, the reform has also created some problems. For one thing a reshaping, as thoroughgoing as this one of the curriculum, requires new textbooks, and - more burdensome - puts a very heavy pressure upon the staff of geography teachers. Many have had to take up serious studying again, and many years of well-qualified experience in teaching have to be reorientated. To assure this, the ministry of education continuously arranges courses for the post-graduate training of teachers.

The new curriculum emphasizes the importance of the students being confronted with different methodological and ideological approaches. Textbooks with a strictly model-orientated approach to human geography are being used together with Marxist, Liberalist and Determinist textbooks. From these presentations the students are supposed to find their own solutions to the geographical problems.

The teachers have to a very large extent been given a free hand in their method of teaching. Within the wide frames of the ministry notice, the individual teacher can use whatever model, method, and material she may choose. The only limitation is that the subjects chosen and the teaching methods used shall be discussed with the students, who are supposed to present their wishes and viewpoints - within the framework - and have them considered. Furthermore 25% of the time must be used to solve problems formulated by the students in cooperation with the teacher.

These general viewpoints on upper secondary training are considered to be extremely important and fruitful.

In the three-year gymnasium giving the matriculation examination geography may be chosen at 3 or 4 different levels: one year with 2 or 3 lessons per week, two years also with 2 or 3 lessons per week, and three years with 2 + 2 + 3 lessons per week.

Cooperation between related subjects is encouraged, and some integration with social sciences is carried out in a number of schools.

THE AIMS AND ORGANIZATION OF THE GEOGRAPHY CURRICULUM PROJECT (RCFP) OF THE FEDERAL GERMAN REPUBLIC

Robert Geipel

THE AIMS AND ORGANIZATION OF THE RCFP OF THE FEDERAL GERMAN REPUBLIC

(= Raumwissenschaftliches Curriculum - Forschungs - Projekt = Curriculum research project for spatial sciences)

1. The point of departure for geography in the sixties

School subjects come into existence as historical products of compromises between the demands of society, the outputs of scientific disciplines and the decision-making of educational administrations. They are influenced by changing public opinion, they have to cope with the competitive pressure of information channels from outside the school system and with the changing objectives of a discipline.

In this respect geography found itself during the sixties in a rather critical situation. The attitudes and expectations of parents and of teachers of other subjects were that geography at the school-level should merely provide an indispensable minimum of locational information. Even the leading authorities in the theory of education assigned geography a place among the typical general knowledge subjects, relatively unpretentious, seeming to provide background information; subjects with one or two lessons per week which could be taught, if necessary, by a non-specialists. Geography offered with its "country-after-country" teaching a traditional warehouse of topics for which students developed only a rather moderate motivation.

On the other hand, topics of present day relevance were being absorbed by "social science" or "politics", newly established subjects with the intention (differing from Land to Land) to remedy the shortcomings of a secondary education which was moulded upon the ideals of a humanistic culture. The origins of geography teachers, either from the natural sciences or social sciences, made them differently willing to cope with the political, economic, sociological and ideological problems which came under the heading of "political science". The time allocations on the school timetable which were originally distributed equally between geography, history and social studies were being usurped more and more by historians and

political scientists, geography teachers supplying only some "supplementary aspects". Many geography-teachers training in physical geography and natural sciences withdrew to their second subject.

Those defending the subject, by crossing the traditional boundaries of geography did not only adopt the rather specialised vocabulary of the competitors; but threatened to disturb the traditionally good cooperation between school geographers and university teachers of geography. Some scientists were afraid that those attempting to reform the subject in schools would try to influence the science itself. They declared themselves incompetent to prepare their students for the unfamiliar contents of social studies in school. Further, those geographers who had found jobs outside schools or universities (in administration and in the planning offices of cities, regions, Lands, federal and international organisations), moved constantly farther away from the kind of topics offered in school.

Students and pupils became more and more critical of the value of geography. There was a tendency for geography to drop in popularity from grade to grade. The teachers began to doubt the importance of their daily work. The reduction in the syllabuses made it difficult to advise a college graduate to study geography. If the trend had continued, the subject would have disappeared from the curriculum, rendering a geography teacher's qualification useless.

2. Changes in geographical sciences and the feed-back to school

This situation in school-geography developed at the same time as changes were occurring at the university level.

Geography, traditionally oriented in the direction of landscapes studies and "Länderkunde" was criticized from the standpoint of the philosophy of science. At first this conflict had the character of a mere dispute between generations. Geographers oriented to social sciences had been cut off during the Nazi-period from the international progress of research. Scandinavian and Anglo-saxon geography was in the lead and had

produced a strong suppressed demand for theory-building within German geography. A younger generation of scholars adopted a more theoretical and quantitative approach to geographical problems. The possibilities of the computer were substituted for the famous "geographical synthesis and "intuition" of the grand old men, who had relied upon general views of totalities, on the understanding of "entities", who had given themselves to the interpretation of spatial individualities. This trend was worldwide, but it was felt more strongly in Germany than elsewhere, because the tradition of landscape studies and Landerkunde had been paramount in this country for a long time.

Further many of the young geographers were willing to use the tools of their discipline on tasks of social relevance. They lacked the experiences of the elder generation of scholars who had to pay at least lip-service to the state during the Nazi era. With the end of the Adenauer and Erhard governments, the taboos which had been imposed on the term "planning" as a result of Hitler's planned economy or of the East-German version of a communist planned economy, vanished. With the "Great Coalition", the first economic recession, with evidence of the drawbacks of the "economic miracle", geographers after 1965 found new occupations opened to them as a result of the "Federal Law for Spatial Planning", outside the traditional careers of teaching in school or university which until then had admitted most of the junior generation. The numbers of "professional geographers" grew as a response to practical demands. Topics dealt with in applied geography during their training, aroused the interest of a younger, politically interested generation of teacher-students and it became evident, that these very topics of planning and designing the immediate habitat were capable of arousing more interest among pupils than the traditional subjects of geography-teaching in school. Syllabuses adopted these topics rapidly contrary to previous experience in which a vast time-lag existed between the development of knowledge and its adoption in school. Teaching programs in universities felt this pressure and departments with research programs unconnected with planning had to legitimize their traditional topics against these demands.

A coalition occurred between quantifiers, reforming school-geographers and the growing number of professional geographers. The first group provided

better theory, the second group cared for the better motivation of students and the third showed that geographical concepts could be applied to problems of daily life. Still lacking was a justification for an approach through educational objectives, an inspiring example, what "new geography" could look like.

3. ROBINSOHN's approach and HSCP - stimulations for a new beginning

Geography started to free itself from its difficulties as soon as it provided itself with a new set of categories instead of continents and countries as tools for classificating its subjects. These new categories derived from the Charter of Athens were the seven "basic functions". A conference in the Reinhardswaldschule near Kassel in 1968 suggested that conflicts between these "basic functions" (to work, to supply, to reside, to learn, to participate in trade and in recreation, to live in a community) could be interpreted as "future spatial situations".

Reformed geography teaching would have to aim at dealing with such situations in a critical and rational way. Robinsohn's proposal, that all education should prepare students to act rationally in the future situations of daily life was accepted by numerous school-geographers as a way of reflecting on the many possibilities of their subject. It was no longer necessary to seek justifications for geography from aesthetic qualities like "entity", "individual 'Gestalt' of a landscape" and similar terms.

No subject in school felt the arguments of Robinsohn's approach more strongly than geography. Present criticisms doubt the practicability of Robinsohn's approach. But it provided geography with the justification of using applied geography as the very core of geography teaching at the school level.

From this standpoint arose the necessity of deriving geographic education from more roots than just geography at the university level, it's hitherto main source. Analysis of practical fields showed (and

this was one of Robinsohn's postulates for the generation of educational objectives) that aspects of urban studies, regional planning, regional science, economy, sociology of communities etc. were necessary to analyse spatial systems and - moreover - make forecasts of their future performances.

While Robinsohn's approach provided the reform-movement within school-geography with a preliminary theoretical concept, results of research into the learning process brought forth the necessity of changing the practical working of instruction. If training in regional description was no longer the core of geography but the capacityfor making spatial forecasts, ways must be sought to lead students to becoming more creative.

Concept learning - as BRUNER developed it - offered a strategy in the face of the "hopeless individuality of all geographic problems". But the quest for a concept-oriented, decision making, active geography, supplied with multi-media-methods and formulating educational objectives, open to quantitative techniques, would still have been a dream for many years if the American High School Geography Project (HSGP) had not set an example. In addition, HSGP proved interesting through the close cooperation engendered between university teachers, specialists in education, psychologists and experienced teachers and because of the combination of local development and central evaluation of the new units and the way that most of these were constructed in form of "activities" for the learner rather than information to be absorbed.

But the three pillars of the American project: discipline, student and society proved instructive in a different way. The introduction of scientific issues and the optimal regard of the learning processes of children were more prominent in HSGP than the needs of society. A German project on the other hand would need to take greater account of society.With the determination, to make "critical participation in planning-processes" one of the main educational objectives, the German equivalent of HSGP had to go beyond a "Cost-benefit-mentality".

4. The problems of legitimizing the RCFP

The initiating group which started the RCFP knew well, that a "new geography" could not be launched by a coup d'etat by a certain school of thought nor as an usurping and exclusive movement of social geographers. Innovative impulses beyond the internal needs of geography-teaching should bring together scholars and teachers to talk about concrete matters, to reduce prejudices and to bring to fruition discussions about educational objectives for academic teaching too. Therefore, it seemed necessary to assemble on as broad a basis as possible, physical and social geographers and encompassing all the different branches of geographical societies. School boards of the Länder and the Federal Ministry of Education and Science had to be approached as well as publishing houses and the practitioners of various neighbouring disciplines. Also the powerful users of geography graduates, politicians from fields like community policy, regional planning policy and policy for developing countries should be given a possibility to participate.

A meeting in the Academy of Political Sciences in Tutzing (Bavaria) February 15-20, 1971 provided the setting for such a discussion. A memorandum for the renewal of school geography was issued. It was considered from the beginning that a much broader platform had to be found for such a project than the consent of a group of 80 persons however qualified for this task and embracing scholars of various disciplines: educationalists, school geographers, teachers of training colleges, heads of government departments of education, publishers, specialists in curricular problems, and representatives of seven adjoining disciplines.

Such a legitimation was necessary because any application for the financing of such a project needed a corporate body which could take the role of legal partner in bargaining with the funding organizations, be it DFG (the German Research Foundation), VW-Foundation or - which eventually proved to be realistic - the Federal Ministry for Education and Science. This application could not be signed by the initiative group of seven delegates or a newly founded organization, because the application could not be defined by the aims of the

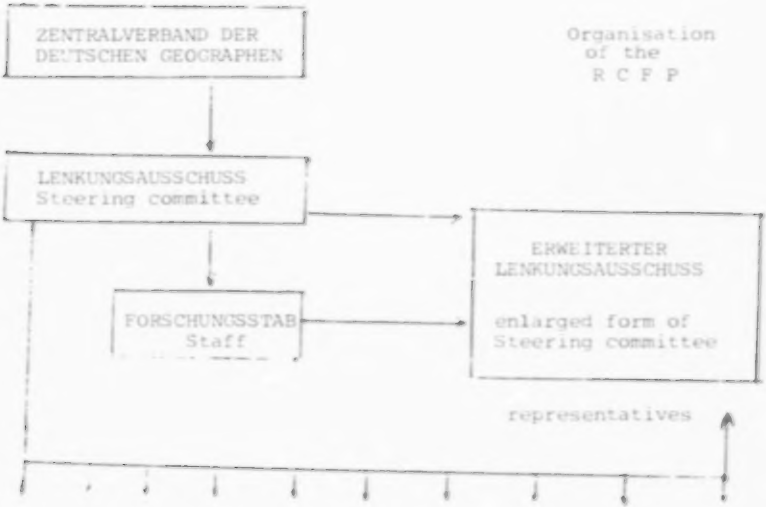
application alone but had to remain in existence for a much longer period.

So the 38th German Geographer's Congress which took place in Erlangen at Whitsuntide in 1971 appeared to be the best platform for a broad discussion and final legitimation of the project. A special issue of the journal "Der Erdkundeunterricht", published within the short span of time between February and Whitsuntide as a report on the Tutzing Meeting and given free to the more than 2000 participants of the Congress informed them about the aims and the organizational model in which the necessarily predominant role of the steering committee and research staff was counter-balanced by the addition of the chosen representatives of the slowly forming regional project groups.

The initiating group of the Tutzing meeting was dissolved in Erlangen and replaced by a steering committee of seven persons, elected in its first constitution by 39 members of an electoral assembly who in turn had been nominated by the five specific branches of the Geographical Society, following a proportionate system of representation. University professors, faculty, school geographers, professional geographers and geographers in faculties of education formed their own electoral bodies. Later on this steering committee was re-elected in two-year-periods by the executive committee of the Society of Geographers. The president of this executive committee signs all papers of a legal nature, the funds are supervised by the Chancellor of the University of Wuerzburg by a commission of the Federal Ministry of Education and Science.

5. The organizational form of RCFP

The following illustration outlines the organizational model of RCFP whose functioning will be sketched briefly:


ZENTRALVERBAND DER DEUTSCHEN GEOGRAPHEN
Organisation of the R C F P
LENKUNGSAUSSCHUSS Steering committee
ERWEITERTER LENKUNGSAUSSCHUSS
enlarged form of Steering committee
FORSCHUNGSSTAB Staff
representatives
P R O J E K T G R U P P E N

REGIONAL PROJECT TEAMS

The role of the "Zentralverband" as partner of the Federal Ministry and the 11 Länder of the FR was mentioned already. It elects the "Lenkungsausschuss" and is the employer of the "Forschungsstab". The steering committee was formed after the model of HSGP and works unpaid. Its composition is not to reflect the policy of the five branches of the Geographical Society, but to pursue all aspects of project policy in a competent way. Some tasks may be handled most efficiently by "full professors" because they have access to the resources of their respective Departments; financial administration is in Wuerzburg, the project staff is based on the Department of Geography at the University of Technology in Munich. The discussions with the school-commissions of the eleven Länder are handled best by school geographers or members of faculties of education. The spatial distribution of the steering committee members over the whole CFR was decided by the various contacts required with governmental officials, the location of workshops or congresses and meetings of teachers. The steering committee usually meets two or three times a year for discussion and decision making.

The staff was established on July 24th of 1974. Consisting of a psychologist, a geographer and a secretary it was too small from the beginning. The original plan of six employees (HSGP up to 24!) could not be financed. The staff has a monthly working load of about 240 subjects (regional project groups, ministries, testing teachers, publishers, printing houses). It prepares the meetings of the steering committee, designs exhibitions and presentation of workshops, edits and revises publications, issues newsletters and reports to the Federal Ministry of Education and Science and the respective ministries of the Länder as sponsors of RCFP. Since 1976 evaluation is one of its main tasks. Tests and the evaluation of the reports given by the teachers who work with project materials will dominate the work of the staff during its last year (1978).

The setting up of regional project groups involve close cooperation between members of geography departments, faculties of education, in-service-training schools and teachers. The regional distribution within the GFR (see map) guarantees close contact between a regional project group and at least one Commission of each Länder-government , some plurality of teaching strategies and the introduction of different regional and school-organizational experience. Such a decentralization of project-development, combined with centralized evaluation all over the GFR combines the advantages of a grass roots policy (experiences in various types of schools, actual relevance of material to local background) with the advantages of a centralized development (comparability of results, the taking into account of facts above the regional level, unification, standardization).

The difficulties of such a "mixed approach" are evident. They mean complicated coordination and processes of group dynamics in the time between first idea and finished product, especially when group-membership changes.

The existence of a representative of every project group into the steering committee in its enlarged form (its usual composition) ensures that there is a constant flow of information. It guarantees the cooperation in all major decisions (financing of groups, priorities in evaluation and publication, association or acceptance of new project groups).

Projektgruppe
Teilgruppe
Assoziertes Projekt
Hamburg
BREMER-HAVEN
Bremen
LÜNEBURG
HANNOVER
Münster
Göttingen
Dortmund
Duisburg
Bonn
GIESSEN
Frankfurt
Mannheim
Heidelberg
Erlangen
Nürnberg
Karlsruhe
München
Freiburg
3112.1973

6. Difficulties with the concepts and content of the RCFP

As with the HSGP there were long discussions about the aims and content of the different activities. The Tutzing-memorandum had set forth an approximate catalogue of themes:

- Redistribution of population as a result of geographical and social mobility.
- Adaption of the historically inherited structure of settlements to the technological possibilities and social demands of today.
- Locational changes of working places (produced by new energy sources, different trade systems, developments on the labor market etc.)
- Requirements of growing leisure time and changing behaviour during leisure time in relation to spatial structures.
- Formation of the present structure of agriculture.
- Establishment of an administrative structure capable of fulfilling social expectations and fitted to the technical possibilities of today.
- Preservation of ecological balance within man's natural habitat.
- Tasks of spatial and social planning in developing countries.
- Elucidating the importance of functionally sensible borders for maintaining peace.
- Appreciation of the ways of life of other groups in other habitats.

The steering committee failed in giving specific tasks to specific working groups in order to produce units on all of these various themes. In the preliminary period which was not yet financed by the Federal Ministry of Education and Science, every group was welcomed which was willing to start a project even without any hope of funding. The steering committee was bound to accept the

themes of such a group if these corresponded with the topics mentioned above. It could only modify them if this proved necessary.

As a result duplication of effort on similar projects could not be avoided. For instance "Munich airport" and "Industrial harbour for Hamburg" are too close to each other. The Bremen groups who planned very carefully a series of activities concerning "Development policy in the Third World" lost certain units of a well balanced whole when local groups dissolved because of the mobility of individual members.

As soon as some cornerstones of the project were fixed, the search for teams to undertake work on the missing themes could begin. But this again was done under a handicap, as scarce financial resources were needed for the project teams which had started first, although financial incentives could have been useful to encourage new team members to work on a centrally given instead of a self chosen project.

The steering committee was faced with the problem that parallel with the attempts of RCFP, many new ideas for reforming geography teaching spread all over the country. Publishers of school books produced new series, games, sample studies,and programmed instruction appeared on the market. All this was encouraging to those engaged in RCFP who, of course, had no monopoly in the production of new ideas. But the problem arose that some of the ideas need no longer be pursued by RCFP since useful material with similar educational objectives appeared in other places.

It was part of RCFP's policy from the beginning to ensure the maximum degree of openness in the production of all materials. Workshops were held during meetings of geographers, half-finished preliminary versions of materials for testing teams were made available, reports on ideas for a project were circulated during the development period of an activity. Financing by public funds justified such a procedure which was different from the behaviour of private publishers in so far as these are competing in a difficult market. But RCFP ran the risk of being asked at the end of its operations what really had been its new approach when geographical education had apparently reformed itself. This however

could have been seen as a success: to have made familiar what seemed originally to be new and revolutionary.

7. RCFP in the framework of professional geographic and non-professional instruction

Publications based on the Giessen and Tutzing (II) meetings showed the thematic framework of RCFP and pointed out the difficulties of bringing together the rather time consuming activities within existing syllabuses. Therefore it must be stressed that the various activities of RCFP must be considered as stepping stones for reform, not as a closed system like HSGP. HSGP intended to reform one or two years of instruction in the American senior high school where geography had to be launched as a more or less new subject. RCFP has to deal with geography teaching (well established though in need of reform) from primary schools to senior college and had to provide nuclei of innovation in a concentrated form, once or twice a year, framed by "normal" instruction following the syllabuses of the eleven Länder of the GFR. Here cooperation of single project teams with the respective syllabus-commissions of the Länder or City-States (like Berlin, Hamburg or Bremen) and the membership of steering committee members in such commissions was very important. This was a guarantee for some activities which were aimed directly at the very core of some syllabuses, while for other activities, negotiations would be needed to provide space for themselves within the normal timetable of geography teaching by concentrating several weeks' lessons on one or two days or by borrowing time from other subjects, procedures about which the German school systems are far from being innovatory.

Some activities might provide only the learning strategy, not the content itself, because of the need to adapt the activity to local data. This, for instance, is the case for the activity "Mobility within Cities" which is illustrated by material about the Bonn conurbation, but every teacher may produce similar materials taken from his own area. So teachers have the opportunity of using either the fully illustrated activity from the RCFP (which restricts his own ingenuity but is time-saving) or (using his own information and

that based on student activities in collecting data) of organizing his lessons individually. He may do so either within a geography syllabus or within a social studies syllabus.

In these differences of product - or process- orientation lies one more innovative chance for RCFP: to encourage teachers, to expand the strategies used in other subjects, to invent their own games, to build up their own "data-banks", to develop series of slides or sets of transparencies for the overhead-projector. Courses given in senior colleges could be provided with elements for the stimulation of research. At present in the GFR geography is the leading subject in the application of educational media, gaming, simulations and therefore has some advantages over history and social science. Together with field studies in urban or regional decision making, "new" geography following the intentions of the RCFP introduces methods of citizen participation in decision making and offers a considerable program for political education. In contra-distinction to the static nature of the past in history and to the sometimes very platonic concerns with new ideals for society in social studies, geography following the learning strategy of RCFP aims at the training of "phantasy, bound to reality". The hard facts of the spatial world are considered in the application of all concepts and generalizations and the necessity for compromise in order to get practical results is highlighted.

8. Conclusions and outlook

Ten years ago the proposal to launch reforms in school by changes of organizational forms, in teaching methods, and through reforming the content of education was part of a more general reform-movement whose origins were varied. Breaking the boundaries of the traditional school system with its three categories of popular, middle and higher education, and the offer, to hitherto under-represented groups, of educating their children in a better way, attracted activities from many persons willing to reform the educational system. RCFP could feel itself and its intentions embedded into a general movement.

At present many of the movements which had started with such great drive are encouraged. The students who had been attracted to higher education are now waiting in frustration at the doors of overcrowded universities. University graduates have to learn, that the overstrained budgets of the Länder are not capable any longer (especially under the impact of birth control and diminishing school enrollment) of providing jobs, for instance for teachers. Unemployment characterizes the free labour market of West Germany's economy.

The educational system of the GFR in many places has reacted to the frictions of an expanding educational society by reverting to acting as an allocation system for social advancement instead of helping all gifted young citizens.

The "numerus clausus" (closed number) of the universities overshadows the learning climate of Colleges, secondary education and even primary education. Parents are monitoring closely all judgements of their children by teachers, whilst teachers on their side try to prevent legal action by parents by making all educational decisions measurable through written examination and proof against claims.

Is there still a place for the RCFP at such a time? Will its activities not lead to frustration, since confrontation replaces decision making, opportunism replaces creativity and formal instruction replaces discovery learning? Is the "capacity to critically participate in planning processes" still acceptable as an educational objective?

To put forward questions like these is easier than to answer them in the affirmative. The intentional pessimism of those who always knew that nothing should change is no alternative. We have to proceed with our reforms, if only within individual schools (resulting from a change in the educational atmosphere between teachers and students) especially as expensive external reforms cannot be financed any longer . To make a contribution to such internal reforms is what the RCFP sees as its task within a rather glum general educational future.

THE TEACHING UNIT OF THE REGIONAL RCFP-GROUP IN FRANKFURT

(Soils as indicators for geo-ecological processes)

IN RELATION TO THE AIMS OF THE RCFP
AND THE NEW 16-19 CURRICULUM

in the

FEDERAL REPUBLIC OF GERMANY

Friederun Fuchs

THE TEACHING UNIT OF THE REGIONAL RCFP-GROUP IN FRANKFURT (Soils as indicators for geo-ecological processes ...) AND THE AIMS OF THE RCFP (= Raumwissenschaftliches Curriculum-Forschungsprojekt) AND THE NEW 16-19 CURRICULUM OF THE FEDERAL REPUBLIC OF GERMANY.

The main points of this paper will be the following:

1. The new 16-19 curriculum for the upper secondary schools in the Federal Republic of Germany.

2. Specific situation of Geography in this new curriculum.

3. The teaching unit of the Frankfurt RCFP-group - a review.

1. The New Curriculum for the Upper Secondary Schools in the Federal Republic of Germany (= Neugestaltung der gymnasialen Oberstufe - NGO)

1.1. Reasons for and an approach to the new curriculum for the upper secondary schools (Sekundarstufe II) in the Federal Republic of Germany.

Laws for schools, universities, curricula in the FRG cannot be enacted by the federal government. Because of the federal structure of the FRG the 11 "Länder" have their own sovereignty for such laws. The difficulties for students who have to move with their parents or the need for comparable examinations which give access to university are evident. Such reasons require a new 16-19 curriculum which could be accepted by all the "Länder".

Therefore on 7th July 1972 the Conference of the Ministers of Education of the 11 "Länder" decided to reform together the curriculum of the "Sekundarstufe II" for all the FRG (= Neugestaltung der gymnasialen Oberstufe - NGO).

The new organization of the NGO is established in the 11 "Länder" since the 1976/77 school year. Until then trials at schools could be realized only according to

the each "Länder's" conception of the new curriculum.

Preliminary steps in the reform of the "Sekundarstufe II" were:

- in 1960: "Saarbrücker Rahmenvereinbarungen" = a framework for some agreements about organization of the curriculum for the "Sekundarstufe II" (decided in Saarbrücken). The Ministers of Education of the "Länder" agreed to reduce the obligatory subjects in favour of a certain concentration of subjects.

- in 1961: "Stuttgarter Empfehlungen" = recommendations for didactic and methodological questions in addition to the agreements about the new organization for the "Sekundarstufe II" in Saarbrücken.

  Further decisions for didactic, methodological and pedagogic questions are in preparation, in addition to the decisions for a new organization in 1972.

1.2. The aims of the decision of the Conference of the Ministers of Education on 7th July 1972 were reforms for the curriculum of the "Sekundarstufe II" (11th - 13th form), first a change of organization. The conception of the NGO is to teach basic knowledge as well as specialized knowledge. Differentiation of the subject pattern would be according to the ability, preference and efficiency of the students. The reform should enable students to fullfill their own interests, to become self-reliant and to reach the intellectual level required for university studies.

1.3. Instruments of the NGO.

Hitherto the students in the "Sekundarstufe II" belonged to the same classes from the 11th to the 13th form and all students were taught the same main and subsidiary subjects. The number of subjects was fixed. There were differences of subjects only in the diverse types of schools. Now the new organization allows students to choose their own main subjects.

Each subject can be chosen as a basic or a special subject (or: main subject and subsidiary subject). The difference between the so-called "Grundkurs" (=basic course) and "Leistungskurs" (=special course) is the variable intensity of learning a subject, and the degree of application of scientifique methods. The aims of the basic courses (3 hours/week) are basic knowledge and ability to apply important working techniques that enable the student to orient himself and apply his knowledge. The aims of the special courses (5-6 hours/week) put more stress on systematic learning and working methods and on a deeper understanding of the subject.

In the NGO each student needs a defined number of courses (basic and special courses) belonging to the following three fields:

- the field of languages - literature - arts
- the field of social sciences
- the field of mathematics - natural sciences - technology.

The depth of learning the special subjects of the three fields can be chosen by the students and depends on the main courses they have chosen.

The courses of the new "Kurssystem" concern the 12th and the 13th form, whilst the 11th form is to be considered as a link between lower and upper secondary schools (Sekundarstufe I and II). The 11th form is a means of bringing the students to the level of the new "Kurssystem" of the 12th and 13th form.

2. The Specific Situation of Geography in the New Curriculum of the NGO

In the new curriculum of the NGO geography belongs to the social sciences field, with a few physical geography themes being allocated to the natural sciences field. In the social sciences field geography or geographical themes can be taught in different courses:

- Social studies (=Gemeinschaftskunde) in these courses the subjects - geography, history and politics are integrated.

- Social studies with a stress on one of the subjects - geography, history or politics.

- Courses with only one subject - i.e. geography. These special geography courses can only be done in addition to other integrated courses.

The possibilities of teaching geography in these new courses as explained above show the situation in Hessen whilst in other "Länder" geography can be treated separately from social studies and other subjects (history, politics).

3. The Teaching Unit of the Frankfurt RCFP-Group - a review

In the framework of RCFP and for the NGO the regional RCFP-group in Frankfurt has developed the teaching unit:

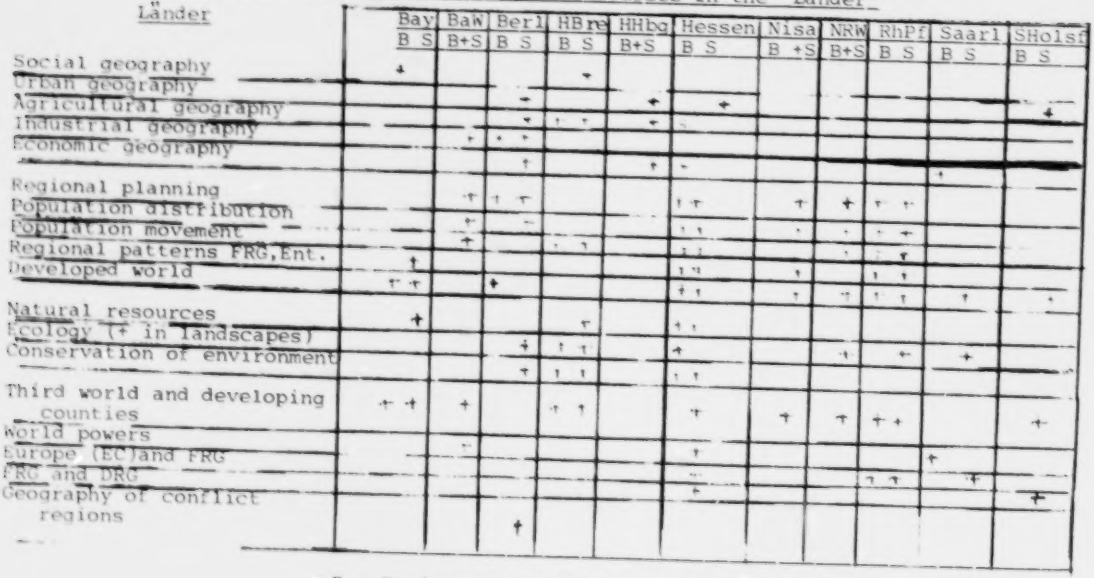
"Böden als Indikatoren geoökologischer Prozesse-Geoökologische Zusammenhänge im Rahmen der Umwelt-sicherung und bei Raumplanungsentscheidungen"
(Soils as indicators of geo-ecological processes - Geo-ecological interrelations in the framework of the conservation of the environment and of regional planning decisions).
for the Sekundarstufe II (new 16-19 curriculum).

The theme consists of two main aspects:

- the geo-ecological interrelations of environmental factors.

- planning problems and decisions in the light of environmental factors.

Themes for basic and special courses in the "Länder"



B - Basic course (3h/w) 16 h/w in NGO for all students

S - Special course (6h/w) (4 x in NGO) if special subject

3.1. Organization of the teaching unit

The unit is provided for a basic course of the new curriculum (NGO) with 3 hours/week during one term (=Schulhalbjahr). The main aspects should relate to an area in the surroundings of the town where the students live: fieldwork is regarded as an important element of this teaching unit.

The teaching unit demonstrates an example of such an area near Frankfurt, various maps and an air photograph are provided. This example can be used to indicate how to study an area near their own school, but it can also be used on its own with the teaching materials provided - (process or product orientation).

3.2. Contents of the teaching unit

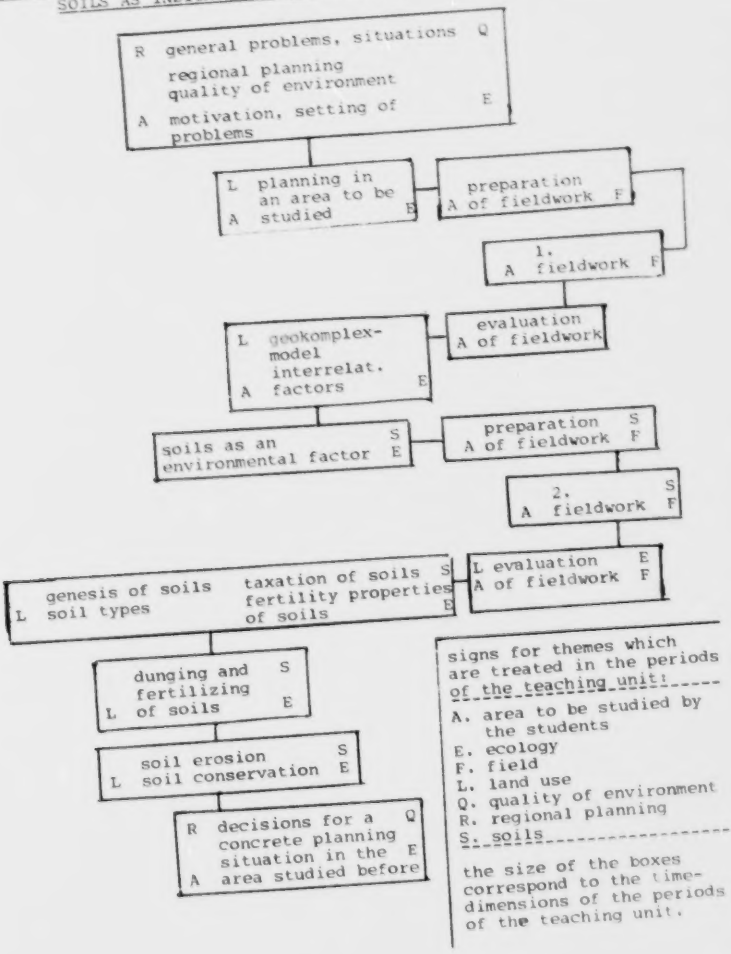
Main points of the teaching unit are: (compare scheme)

- geo-ecology
- interrrelations between environmental factors
- soils as indicators of such interrelations
- environmental problems - threat to and conservation of environment
- soils - an example of limited resources (soil erosion and soil conservation)
- land use
- planning problems

3.3. Scientific and social reasons for the teaching unit

Economic development recently has brought a number of environmental problems. An important question today is how to conserve our environment for the future. Environmental problems impinge on everyone's awareness. The technical and economic possibilities for growth will be limited where impacts on the ecological equilibrium lead to irreversible processes. Pollution of water and air, molestation by noise and dangers of radioactive contamination by nuclear power plants are the objects of public discussion. Injuries to soils are not as evident but not less grave. Therefore this problem has to be made known, especially as soils are a limited resource and need a long time (some 1000 years) for regeneration.

Scheme for the Course of the RCFP-Teaching Unit (Frankfurt/Main)
SOILS AS INDICATORS FOR GEO-ECOLOGICAL PROCESSES


R general problems, situations Q
regional planning
quality of environment
A motivation, setting of problems E
L planning in an area to be studied A E
preparation of fieldwork A F
1. fieldwork A F
L geokomplex-model interrelat. factors A E
evaluation of fieldwork A
soils as an environmental factor S E
preparation of fieldwork A S F
2. fieldwork A S F
L genesis of soils soil types
taxation of soils fertility properties of soils S E
L evaluation of fieldwork A E F
L dunging and fertilizing of soils S E
L soil erosion soil conservation S E
R decisions for a concrete planning situation in the area studied before A Q E
signs for themes which are treated in the periods of the teaching unit:
A. area to be studied by the students
E. ecology
F. field
L. land use
Q. quality of environment
R. regional planning
S. soils
the size of the boxes correspond to the time-dimensions of the periods of the teaching unit.

To know something about the consequences of man's impact on the geo-ecological equilibrium one has to understand the interrelations of environmental factors. The dynamics of such processes can be shown by inquiring into soils; therefore soils can be used as indicators for geo-ecological or environmental processes.

Manipulations of soils influence the other factors as well. Land use, conservation and fertilizing of soils have to be concerned with such consequences.

Knowledge about the interrelations between environmental factors should enable students to act for conservation of environment when participating in planning processes and decisions.

3.4. Didactic reasons for the teaching unit

Environmental problems are substantial part of geographic curricula today. The students are informed about these problems by discussion and are engaged in these problems, as air and water pollution, molestation by noise and the use of nuclear energy, are current issues in society. The interest of the students in such problems should be used to show them the importance of geo-ecological interrelations. The factor "Soil" is treated in depth as these interrelations can be demonstrated by soils very well.

Other reasons for using this theme for the RCFP were the following:

- the danger of soil erosion and the bad use of soils is known only by few because this danger is less evident as other dangers in the environment.

  But students of the "Sekundarstufe II" should be able to find out the importance of such phenomena.

- soils, as indicators for geo-ecological interrelations, are compared in other environmental factors easy to reach and to find in a sufficient variety over a small area near to each school.

- inquiry into soils in the field can be done with simple methods.

The activities of inquiring and measuring in the field address abilities which in normal school teaching are not tapped. So fieldwork is motivational. In the FRG fieldwork in this form is an innovation.

The teaching unit is provided for courses of the NGO because in this age range it can be expected that there exists:

- the ability to understand complex interrelations;
- a basic knowledge of chemistry, physics and biology;
- some knowledge of general and regional geography.

The importance of environmental conservation for the future requires teaching about these questions even though in the previous years before social geographic themes predominated.

3.5. Main teaching aims of the teaching unit

(= regulative Lernziele)

The students

- should be prepared to act for environment conservation
- should be able to bring geo-ecological aspects into discussion about planning processes
- should be enabled to argue with knowledge for the conservation of environment.

OBSERVATIONS ON THE FRENCH GEOGRAPHICAL CURRICULUM

Donald Curran

OBSERVATIONS ON THE FRENCH GEOGRAPHICAL CURRICULUM

About teachers' attitude:

It seems to me that most French teachers are devoted to our traditionally universalist, regionalist and citizenship conception of Geographical education.

Universalist: Pupils entering the "seconde" - are supposed to have acquired some knowledge of the whole earth. This is to be complemented by the study of examples of the great geopolitical divisions of our contemporary world, that is to say the developed capitalist countries, the developed socialist countries and the developing countries of different patterns (i.e. China, India, Pakistan, Brazil). A large part is devoted to France and the major economic powers, a not too unbalanced approach to worldwide realities is hoped for.

Regionalist: Teachers have to describe the natural features, population, economic activities of territorial entities, national States and regions stricto sensu. Systematic geography is the subject of the "seconde", principally cultural Geography, in order to get the basic concepts necessary for a better understanding of regional Geography.

Citizenship: When learning about the spatial distribution of important natural and social facts throughout the world, our students are supposed to develop the intellectual approach required to bring out the meaning of the great political, social, economic problems resulting from to-day's relationships between nations and the spatial organization within states, and so prepare themselves to take an enlightened part in political life. Reference to scientific objectiveness and a tendency towards normative appreciation are both underlying this purpose.

Students' attitudes:

Modelled after the traditional educational schemes, most of the students do not appear to question these fundamentals, even when the lessons are boring them. Civic aims, in particular, are widely accepted. As their minds are bent on current events and up-to-

dateness, many of them feel disposed to discussing the political-economical news spread by the medias.

On the other hand, a distinct majority is allergic to two aspects of our traditional teaching in Geography:

- All parts of physical Geography. It may be surprising at a time when ecology is in fashion. This suggests that links between the natural environment and our daily life are not well discerned; it may mean that they are not well taught.

- Regional studies, in the restricted sense of the word region. This is another paradox for a time when political regionalism and regional management are in vogue. I must add that this observation is perhaps related to a restricted Parisian experience. However it is probably a reaction against some excesses of a geography which, too often, consisted of lengthy descriptions of the old rural districts. The ill discernment of interrelations between the geographical phenomena, matter of the regional synthesis, is also probably responsible for it.

Some personal remarks:

The previous remarks are just factual findings. But to interpret and explain such conditions is a personal affair. So what I express here is only my own view, and I do not reflect the collective opinion of the "Association des professeurs d'histoire de geographie".

I am not sure that the outcome of our geographical education is very conclusive. I bring my experience of teaching a highly selected group of 18-19 year old students, an intelligent, hard-working, interested audience. They have not the slightest sense of geographical space. They have been accustomed to consider location of phenomena as a collection of unrelated details to be memorized just as they are, and naturally more or less forgotten later. An economy is an abstraction which needs not to be positioned in a definite, actual space. I have also noted the same lack of historical attainments, and the persisting tight bulkheads keeping apart History and

Geography; for many years, however, valuable efforts have been made in the "terminale" to throw bridges between the two sciences, usually taught by the same person. Yet, the notion of evolution in geography remains very loose, the sense of time being lacking as much as the sense of space, and the relations between the two concepts not even thought over.

Therefore I have to record, at least partly, a failure, and also a painful waste. Many colleagues are toiling hard to develop the capacity for reasoning in so many well-disposed students, and yet often the ideas retained are mere stereotypes. Why? Diagnosis is not easy. I think that we cram our pupils with too much and too ambitious intellectual fare; we pretend to develop intelligence by handling ideas sometimes over-simplified, sometimes requiring maturity and experience our young audience cannot have. The fruits of unfit ambition are reactions of disenchantment, pretentiousness and bubbles of verbiage. Further, I wonder if our geographical curriculum is not encumbered with the cumulative and disharmonious legacies of the past, we have not acquired a conceptual frame strong enough to enable the development of sound reasoning. But I feel unable for the moment to analyse those problems thoroughly, as the uneasiness felt by many geography teachers has not yet raised many systematic questions.

POINT DE VUE DE LA COMMISSION PEDAGOGIQUE DU COMITE NATIONAL FRANCAIS DE GEOGRAPHIE SUR LES PROJETS DE PROGRAMMES INTERESSANT LE SECOND CYCLE (15 - 18 ANS)

Jacques Bethemont

POINT DE VUE DE LA COMMISSION PEDAGOGIQUE DU COMITE NATIONAL FRANCAIS DE GEOGRAPHIE SUR LES PROJETS DE PROGRAMMES INTERESSANT LE SECOND CYCLE (15-18 ANS)

1. L'Ecole et l'Université: un dialogue difficile

La formation des maitres constitue dans le système scolaire français , le seul lien reconnu entre les enseignements secondaires et supérieurs. Notons toutefois que près de la moitié des professeurs de géographie, principalement ceux qui enseignent dans la tranche d'age 12-15 ans, n'ont reçu aucune formation spécifique dans cette discipline.

La tache de formation confiée a l'Université n'implique pas que cette dernière soit concernée par la formulation des programmes. En fait, ceux-ci sont definis par les services du Ministère, sans que soit prévue la consultation des instances universitaires.

En dépit de la rigidité bien connue de la machine administrative française, ce manque d'interférences a toujours été corrigé dans la pratique, tant par la multiplicité des contacts personnels maintenus entre les enseignants universitaires et scolaires, que par l'action des Inspecteurs Généraux qui travaillent avec les Professeurs d'Université dans le cadre des concours de recrutement.

Au demeurant, administrateurs et universitaires sont conscients du fait que les étudiants devenus enseignants ont tendance a reconduire le modèle qui leur a été inculqué au cours de leur passage a l'Université. Les changements des méthodes, les renouvellements conceptuels passent en fait par l'Université, mais les implications de ce processus ne sont ni evaluées ni systématiquement exploitées.

Précisons enfin, que le manque de liens institutionnels entre l'Ecole et l'Université s'est accru depuis quelques années avec la création d'un Secrétariat

d'Etat aux Universités, devenu en 1977 un Ministère indépendant, distinct du Ministère de l'Education Nationale.

2. Les Universitaires et les projets de réforme

La cesure de fait n'a été ni nettement perçue ni excessivement gênante, aussi longtemps que les programmes et les méthodes de l'enseignement secondaire se sont inscrits dans une longue tradition evoluant lentement et sans rupture. Il n'en a plus été de même, à partir du moment ou la réforme Haby a entrainé un renouvellement conceptuel qui s'inscrivait notamment dans des programmes caracterisés par:

- la définition préalable d'objectifs généraux et d'objectifs opérationnels

- le renouvellement didactique (approches diachroniques, conceptuelles, etc...)

- la recherche d'intégration portant sur les differentes branches des sciences sociales

La publication des avant-projets puis des programmes du 1er cycle (12-15 ans) ont laissé aux universitaires géographes l'impression que les traits spécifiques de la discipline allaient s'altérer rapidement dans le creuset trop vaste des "sciences sociales". Il en est resulté une prise de conscience très nette,qui s'est manifestée a l'occasion des Journées Géographiques de 1975. Cette prise de conscience a abouti à un travail de définition et de délimitation du champ géographique interessant l'enseignement secondaire.

Au cours de cette demarche, les universitaires se sont moins préoccupés des problèmes pédagogiques que du contenu des enseignements tel qu'il ressort à travers les programmes ou projets. Cette attitude peut s'expliquer aussi bien par la spécificité des enseignements universitaires que par le manque de contact avec les maitres du secondaire.

Toujours est-il que divers groupements (notamment l'Association des Geographes-physiciens), qui se trouvaient particulierement menacés par les projets de réforme ont coordonné leurs efforts menaces par les projets de la Commission pédagogique du CNFG pour proposer un programme cohérent pour le second cycle correspondant à la tranche d'age 15-18 ans. Les travaux ont été particulièrement poussés pour les programmes de seconde (lere année du second cycle), qui figurent en annexe a la présente communication. L'ensemble de ces documents a été communiqué aux Services Ministériels, à un moment ou les programmes officiels n'existent encore qu'à l'état de projet. Il apparait donc nettement qu'en définissant un programme, la commission a surtout cherché à faire connaitre à l'Administration le point de vue des universitaires.

3. Caractéristiques essentielles du projet

A noter en premier lieu, que certains avant-projets officiels prévoyaient de limiter l'enseignement des sciences sociales aux deux premieres années d'un cycle scolaire de trois ans. En demandant le maintien de l'enseignement dans les trois années et dans toutes les sections du second cycle, la commission a défini explicitement une première série d'objectifs portant sur la formation des jeunes actifs qui doivent avoir une vue complète de l'espace planétaire et des problèmes fondamentaux de cet espace.

(1) La répartition de l'enseignement a été proposée comme suit:

- premiere année: ce monde où nous vivons: la terre et les milieux naturels, les hommes et leurs activités, les relations homme-nature et les problèmes de l'environnement

- deuxieme année: la France dans l'espace européen

- troisieme année: pays d'economie evoluée, pays en voie de développement; le problème des rapports entre pays riches et pays pauvres.

Il est evident que le contenu des deux dernières années pourrait être réparti de façon différente, la France et

l'Europe pouvant être intégrées au groupe des états evolués, ce qui laisserait plus de temps pour l'étude des pays en voie de développement.

(2) Le problème de l'intégration avec l'ensemble des sciences sociales a donné lieu a plusieurs débats, éclairés par la publication des programmes du Premier Cycle, ou cette recherche d'intégration n'a pas debouché sur des perspectives convaincantes.

Pour le Deuxieme cycle, l'avant-projet universitaire prévoit une intégration avec dominante géographique dans la premiere année, a travers trois thèmes: ce monde où nous vivons; la genèse du monde contemporain; les problèmes du monde contemporain. Il apparait toutefois que dans le projet ministériel, les données et problèmes du milieu naturel ont été envisagés de facon superficielle et incomplète, ce qui semble paradoxal au moment ou se révèle, particulièrement chez les jeunes, une nouvelle sensiblité environnementaliste. Au demeurant, la recherche d'intégration peut etre valable, mais elle ne peut être abordée que par coopération entre universitaires et enseignants issus des diverses composantes historiques économiques et sociologiques, travaillant avec les géographes.

(3) Le problème de cohérence des programmes a été abordé par la recherche et l'application d'un petit nombre d'idées directrices en l'absence desquelles le contenue du programme proposé en annexe perd une bonne part de sa signification.

(4) S'agissant de l'étude du milieu naturel, l'accent a été mis sur la logique d'enchainement qui va de la planète inerte a l'homme, en passant par l'étude des grands ensembles, les sources de la vie, les cycles de l'atmosphère et de l'eau, les milieux naturels et leur dynamique. A noter l'existence de liaisons commes celle qui est établie entre tectonique et exploitation des gisements minéraux.

(5) S'agissant des hommes et de leurs activités, l'idée directrice porte sur l'organisation des societés dans l'espace en fonction de leur mode de production actuel.

Cette organisation est également fonction de leur histoire, donc de la manière dont se sont succedés divers modes de production. Quels que soient ces derniers, on peut faire ressortir un double mouvement: dans le domaine de la production vers l'industrialisation; dans le domaine de l'habitat vers l'urbanisation.

(6) Les problèmes d'environnement, de répartiton et de gestion des richesses naturelles du globe assument la liaison entre ces deux lignes directrices et donnent l'éclairage nécessaire à la compréhension d'un grand nombre de problèmes actuels.

4. Evaluation du projet

Il est certain que le projet formulé par la Commision Pédagogique n'est pas depourvu de prétentions encyclopédiques. Ses auteurs le reconnaisent volontiers tout en faisant valoir le parti simplificateur inhérent au choix de quelques lignes directrices.

Peut être conviendrait-il de modifier la présentation et la formulation définitive d'un tel programme. Du moins peut-on l'assimiler à un exposé des concepts jugés indispensables à toute formation de base, par les universitaires géographes.

Du débat qui s'est amorcé dans le cadre des journées géographiques avec les spécialistes de la pédagogie, ressort la possibilité et l'opportunité de réviser ces propositions a l'échelon régional avec les enseignants du secondaire qui sont les premiers concernés. On peut donc espérer que par ce biais, les liens indispensables qui unissent les divers cadres d'enseignement pourraient être resserres dans l'avenir et cette perspective semble devoir profiter en tout premier lieu aux universitaires dont l'attention est enfin sollicitée par les problèmes didactiques.

ANNEXE 1

Proposition de programme pour la classe de seconde présentée par la Commision Pédagogique CNFC

Ce monde où nous vivons

Géographie physique: la terre et les milieux naturels

Les océans, les continents et leurs reliefs

1. Le point de départ est la répartition actuelle des terres et des mers. A partir de planisphères, de cartes, de vues aériennes et d'images de satellites il est aisé de decouvrir de grands types de reliefs et des paysages contrastés. Parallèlement de nouvelles méthodes d'études et des moyens techniques moderne seront évoqués.

2. Reliefs, structures et dynamique des plaques. Explication rapide de la mise en place des chaines de montagnes, massifs anciens, bassins sédimentaires. Prévoir également une initiation à l'étude des déformation récentes de l'écorce, aux grands phenomènes catastrophiques (séismes, éruptions volcaniques), ainsi qu'a la morphologie des fonds sous-marins.

3. En illustration, études exemplaires de quelques grandes unités. Ainsi: l'Afrique orientale, l'Amerique du Sud ...

4. Géographie explicative de la localisation des grands gisements minéraux et de certaines sources d'énergie (charbon, pétrole, géothermie).

Les sources de la vie: le soleil, l'eau

1. Le bilan des radiations: point des connaissances les plus récentes sur l'atmosphère, apports d'énergie et déperditions, conséquences du point de vue de la dynamique atmosphérique (masses d'air et fronts, centres

d'action thermiques et dynamiques, circulation en altitude et grands flux de la basse atmosphère).

2. Bilan océan-atmosphère, dynamique des climats, variations en latitude et selon les saisons du bilan ocean-atmosphère, étude des perturbations.

3. Précipitations et cycle de l'eau. Schéma du cycle de l'eau mécanismedes précipitations; répartition à l'échelle planétaire.

4. Quelques énergie renouvelables: énergie solaire, vents, hydroélectricité, et les ressources en eau - y compris les ressources non renouvelables comme les nappes d'eau fossiles.

Les milieux naturels et leur dynamique. Nécessité d'une perception globale du paysage.

1. La carte des milieux naturels.

2. Le fonctionnement d'un milieu naturel: schéma global des intéraction entre les divers éléments d'un milieu. L'érosion: transports de matière, expression de l'inégale stabilité du milieu.

3. Les types de milieux continentaux: milieux instables (dont le milieu montagnard), milieux stables, études fondées sur des exemples concrets.

4. Les milieux littoraux et maritimes. Notions d'hydrologie et biologie marine - étude de quelques exemples (plate-forme, mer fermée, milieu lagunaire ...).

5. Modifications passées et milieux naturels: les héritages. Notion d'oscillation climatique, variations du niveau marin.

Conclusion: atouts et contraintes des milieux naturels. Inégale vulnérabilité des milieux naturels devant l'intervention humaine (transition avec la deuxieme partie du programme).

Géographie humaine

L'espèce humaine à la surface du globe

1. Le peuplement du globe: moyens de connaissance des faits de population (recensements), répartition de la population, liaisons entre modes de production, densité et degré d'urbanisation.

2. Les migrations régionales et internationales. Les fronts pionniers . La colonisation et l'européanisation du monde. Exode rural et attraction urbaine (liaison avec l'industrialisation).

3. Les caractéristiques démographiques d'une population. Liaisons entre caractéristiques démographiques et modes de production. L'explosion démographique actuelle. La prospective démographique.

4. Les caractéristiques culturelles d'une population. Egalité théorique et inégalité fondamentale des langues selon le mode de production. Système de parenté, religion, société et mode de production.

Les activités des hommes

1. Les activités des hommes dans les sociétés primitives.

2. Les activités des hommes dans les sociétés paysannes. Les niveaux d'organisation (du village à l'état). Prépondérance de l'agriculture et dépendance par rapport au milieu naturel. Activités artisanales, industrielles, organisation des échanges. Quelques types de sociétés.

3. Les activités des hommes dans les sociétés industrialisées:

- aspects généraux
- les systèmes d'organisation et de production
- l'agriculture, secteur dépendant, des exemples ..
- l'industrie: énergie et matières premières, industries de base, d'équipement. Les systèmes industriels capitaliste, socialiste
- les secteurs des échanges.

4. Les modes de production avancés à la conquête du monde. Colonisation et décolonisation. Matières premières et main d'oeuvre. Echanges internationaux. Espaces dominés et sous-développement.

L'urbanisation de la planète

1. La ville comme forme d'organisation de l'espace, liée à un certain degré d'évolution de la société. Types d'urbanisation et modes de production (sociétés sans villes, villes des sociétés à dominante paysanne, villes des sociétés à dominante industrielle).

2. Techniques de construction et d'organisation des villes. Les quartier, la ville dans la region, hiérarchisation de l'espace, poles et flux.

3. Vers l'urbanisation totale de la planète? L'urbanisation des pays sous-développés. Liaison avec l'environnement.

Environnement et relations homme-nature

- Les relations homme nature et les modes de production.
- La croissance des effectifs et des besoins, face aux disponibilités planétaires. La dilapidation des ressources naturelles. Ressources renouvelables et non renouvelables (estimations des ressources, perspectives d'épuisement, implications politico-économiques).
- Formes de dégradation des milieux et formes de pollution liées a l'industrialisation.
- Vers de nouvelles relations entre l'homme et la nature. Protection et aménagement. Ambiguité de l'action humaine: Aspects négatifs, aspects positifs.

GEOGRAPHY FOR THE 16 - 19 AGE GROUP

in

FRENCH LYCEES

Louise Marbeau

GEOGRAPHY FOR THE 16-19 AGE GROUP IN FRENCH LYCEES

Geography is not taught in isolation in French secondary schools: the same teacher also teaches history, geography and an initiation into economic, social and political studies (formerly called "instruction civique"). This block of subjects forms a common course, compulsory for all the students, for four hours a week with some differences in the various streams. The current curricula for 16-19 years old students have been applied since 1967-68 in all the French lycees.

The teachers of history and geography in lycees have had a long university academic training (at least five years) and a one year pedagogical training. The teacher with a "licence" or a "maitrise" degree may specialize in history or geography; but each of those degrees include both subjects. Geographical studies at university include physical and human geography. After the master's, degree the competitive examination giving access to teaching (CAPES) includes history and geography (1/2 + 1/2). At the level of the "agrégation",a very competitive examination is more specialized in geography (3/4) or in history (3/4).

After having passed the academic competitive examination (written papers and orals) there is a year of pedagogical training including teaching practice. At the end of the year there is a practical examination and, with few exceptions, after passing this the teacher becomes a civil servant, paid by the state; he is allowed to teach during all of his life and retires between 60 and 65.

Until the sixties, almost all the "historian-geographers" taught three subjects during the four hours a week allocated on the timetable for each class: history, geography and "instruction civique". A new trend has developed: the willingness to find links between those subjects. If it has been practically impossible to do so in the "classe de seconde" (first year of the upper secondary school; students 15-16 years old), many

teachers try to realize a more integrated approach in the two last years of the lycee.

This situation has its own characteristics. Nevertheless the European and world pedagogical tendencies are obvious in our problems and some speak of interdisciplinarity, others of integration; the new curricula being prepared are called "sciences humaines" though others prefer social sciences or social studies.

I. GEOGRAPHY CURRICULUM FOR 16-19: THE OFFICIAL TEXTS (still applied in 1977-78).

These are prepared by the "General Inspectors" (eight for history and geography), and submitted to the Ministry of Education; they are discussed and adopted by a ministerial commission and published in the "Journal Officiel" and the Official Bulletin of Education.

1. The Syllabus

The present one was published July 13, 1967. Those texts do not include objectives, methods, learning experiences etc.

2. The Instructions for Geography

In France, a syllabus is accompanied by explanations and suggestions including objectives. The last "general instructions" for geography, for the 16-19 age group, were published May 4, 1955; complementary instructions were added in January 1957, but no new instructions accompanied the new syllabus of 1967.

- The first page of the "general instructions" makes the distinction between geography as a science and geography as a subject matter in the lycee. The text stresses the necessity for localization, description, explanation, comparison and establishment of relations between phenomena .

- The teaching of geography has to be adapted to the different ages of the pupils; geography at school is not geography at the university: it has to be simplified but must remain scientific.

- The teacher's academic training must be deep and wide; a pedagogical training is necessary and in-service training too.

- Geography is at cross roads: the natural and social sciences have to be used to explain landscapes and ways of life. The teachers are asked to coordinate geographical and historical studies, especially in the "classe terminale", as modern 20th century history is taught together with the geography of the major world powers.

- Geography has to use documents: maps, sketches, charts, photographs, films ...

- Geography has to use active methods: inquiry and inductive method, research, television, tutorial work, newspaper cuttings, the teacher being himself very active.

- Geography has to use topical events; one aim being to realize civic education.

- Geography should teach students to be tolerant of other peoples though understanding their ways of life, their beliefs ...

- Geography should be concerned with the world's main problems: physical, biological and human.

3. In the instruction requiring an initiation of pupils into the contemporary world ("circulaire" April 24, 1972): "historian-geographers" teaching in the lower secondary schools (college: age 11-15) are asked to tackle problems of environment in an integrated way. A team of teachers must work together with a multi-disciplinary approach: interdisciplinary topics are chosen ("real life problems"); this teaching is mainly done by the "historian-geographer"; in 1972, this had not been generalized in all the colleges but experiments have been organized in hundreds of schools: inquiry into the local environment, community services, pollution of streams, industrialization ...

These official instructions in themselves did not lead to a pedagogical change, attitudes and pedagogical habits being conservative and the power of the text-book great.

Geography, especially in the first year of the senior high school (classe de seconde of the lycees), remains essentially analytic and descriptive; in most of the cases investigations into the local area or region did not take place; physical geography still occupies a large place in this first year of the lycee.

However, several "commissions" prepared new curricula from 1967 to 1977.

II. NEW PROPOSALS FOR THE OFFICIAL CURRICULUM

A. The "Old" New Programs

A commission including general inspectors and university professors prepared a new curriculum for history, geography and civics in 1967 and 1968. The main difference was not in geography but for history in the "classe de seconde": the official syllabus (still applied today) of modern history (1789-1848) was to be replaced by a new one. The students and the teacher were to choose ten topics out of thirty six: two in ancient history, two in the middle ages, two in modern history before 1789 and four in contemporary history from 1789 to the present days.

The objectives of this curriculum were to make possible studies of periods far in the past, but also to favour study of the most recent period, the last aspect being important for geography and especially for the geography of France (curriculum of the second year of the lycees: "classe de première").

A few lycees were chosen to experiment this new syllabus of history of the "classe de seconde". Nevertheless, after the departure of M. Olivier Guichard, minister of education, this syllabus was neither published nor applied.

B. A New Proposal for Curriculum Reform (1977) for History, Geography and Social Studies in the Second Cycle (lycées).

It was prepared by the general inspectorate but is not officially adopted. It was written within the context of the Haby reforms: the common and compulsory courses were to remain only for the first two years of the second cycle. The reform has not yet been introduced in the second cycle.

This new curriculum is being tried out in the "classes de seconde" by teams of teachers in six lycees. Those teams are free to set up their objectives and topics for the whole school year. These experiments are not linked to any official pedagogical research. One general inspector in history and geography supervises them and the general inspectorate will receive reports about them. Nevertheless three out of those six lycees are, or were, working with the Institut National de Recherche Pedagogique (INRP): some of the teachers within the teams are acquainted with educational research.

1. The following is an example of the work realized in 1977-78 in the "classes de seconde" of the Lycee de la Folie St James (Neuilly) by four "historian-geographers". They planned the work in seven parts for the school year.

(a) General introduction: This world in which we live
Objectives: revising and completing what has been learned during the four previous years: Knowledge, ability, behaviour (localisations, mechanisms, explanations ...); using active methods: work on documents, individual and small group work, synthesis with the teacher and some class teaching.

This general introduction includes:

- world maps, climates and vegetation; (charts, the two hemispheres, the evidence of slides);

- the theory of plate tectonics, localization of the main mountain systems;

- the main divisions of the world: (world map on GNP/capita) development and under-development, (text analysis);

- demography, in 19th and 20th century; main population developments; (world and population map today); two examples: Sweden and India;

- economic and political groupings: NATO, SEATO, AUO, COMECON, EEC; (documents and maps).

(b) Demographic, economic, social and political evolution

- Paris from the 19th century to present day (statistics, books, pictures, slides ...); special documents on the 19th century (Documentation Francaise Photographique);

- economic and social evolution (three films, visits to the Conservatoire des Arts et Metiers); Studying documents on 19th century Carmaux (coal mines) on the Regie Renault (automobile).

(c) Changes in the North of France including changes in landscapes.

(d) French society in the 19th and 20th centuries.

(e) Socialism in the 19th century.

(f) Agricultural revolution (novels of the 19th century, ethnology in the 20th century).

(g) Actuality (1977-78: the legislative elections of March 1978 in France).

2. Experiments in 1978-79 and 1979-80

The reform HABY has not been applied in the second cycle of secondary schools in 1977-78. The common compulsory courses (which were to be considered only for the first two years, the third and last being optional) still exist for the three years of the lycee.

The "Association des Professeurs d'Histoire et de Géographie" is against the reform and wishes history, geography and social studies to remain compulsory during the three years.

Given the lack of formal decision to change the curriculum, it is possible to experiment with new curricula covering three years. The general inspectorate has proposed an integrated curriculum for the last two years of the lycees. In the "classes de 1e and terminales" a few countries would be chosen and could be studied from a "social sciences" point of view, including history. The guiding theme would be mainly spatial, and geography would be most important, though several other social sciences would be used to explain various phenomena.

3. New curricula, aims, objectives, methods

The title given to the new curriculum for the "second cycle", 1976-1977, is in itself revealing: "Human Sciences"; and its objective is quite clear: the "Study of the contemporary world", which should be grasped in all its complexity and depth (roots in the past, the acceleration of history) and its diversity. Mindful of a need to establish, as thoroughly as possible, coherence in the geographical, sociological and historical lines of approach, a complete integration has, in certain cases, been proposed.

Educational aims have also been pointed out: at the end of the "classe de première", it is advisable that pupils be prepared for their entry into a changing society, and for responsibility in decision taking which involves their future and the exercise of their rights and duties as citizens. In the "lycees", the teaching of Human Sciences should keep to and even increase the activity methods used in the "collèges". Teachers should help adolescents to develop their own knowledge, know-how, and attitudes, taking into account their greater maturity and their growing desire for independence.

This curriculum was at first planned over two years ("classe de seconde" and "classe de première") within the framework of the Haby reform, which excluded the "terminale" from the main body of teaching common to all classes. It is clear that the objectives postulated by the General Inspectorate for History and Geography could be pursued over three years, as the "temporary" syllabus intended for the six experimental schools shows.

Having examined official curricula and official proposals for new curricula, it is necessary to indicate the evolution of the thinking, and practice of teachers and the position of the General Inspectorate from 1968-1978.

C. Teachers, also, have thought over the new curricula and their own teaching practice, especially in 1968/69 and 1974/75. The pedagogical doctrine of the General Inspectorate has also evolved.

At the time of the crisis of 1968 and in 1968-1969, many teachers realised that their pupils had changed and that a certain number of pedagogical problems had arisen. At the end of 1968, an important national course, directed by the inspectorate, took place at Sevres. Teachers wishing to see a great change in the teaching programmes and methods gave ample expression to their ideas. A special issue of the Bulletin of the "Association des Professeurs d'Histoire et de Géographie" was published, expressing a desire for curricula giving guidelines and not instructions, for work on documents, taking into account the pupils' interests, and modernizing the contents of these curricula.

This great movement of ideas was not followed by any radical modification in the attitudes of most teachers, the majority of whom were very isolated and had no wish to engage in team-work. It was however manifested in the General Inspectorate's proposals for new curricula, allowing teachers to make their own choice (this was never, as we have seen, put into practice). In fact, only six schools tried out this new History curriculum in the "classe de seconde".

The results were not always very convincing. Experimenting teachers rarely worked as a team to plan their teaching and select the ten topics to be chosen from the thirty six proposed. Even more rarely did they succeed in covering, during the year, more than four or five topics. The positive aspect of this experiment was the systematic use of various

documents: the teachers had to innovate in the absence of suitable textbooks and the pupils practised the historical method better.

For all French lycees, however, (about 2,300 both state and private) the official curricula of 1967 remained in force for the "second cycle", despite successive ministerial projects for a reform of the education system. But the General Inspectorate gave teachers the possibility of making choices within these curricula, hoping thereby to stimulate activity methods. Courses on a national scale organized for teachers by the General Inspectorate for History and Geography (1973, 1974, 1975) had as their purpose a general debate on pedagogical questions: choice of topics, work with documents, group activities, pupils' independent work. The regional pedagogical inspectors (assistants to the general inspectors, with positions in the 25 academies) supported these ideas, by calling together in each academy a great number of history and geography teachers from the first and second stage of secondary education.

Over the last ten years (1968-1978) teachers have been aware of and have been discussing ideas such as: Human Sciences; Social Sciences "interdisciplinarity", "decompartmentalisation", integration, specialisation, aims, objectives, learning, evaluation, genetic development of children and adolescents, motivation.

Activity methods, however, have been progressing rather slowly in the "second cycle", and a systematic initiation of 16-19 year old pupils to work on documents, to group work and independent work is still (in 1978) far from being instituted in all schools.

At the time that the proposals for the curricula of 1976-1977, were made, new ideas were used and in particular that of teaching by objectives.

This curriculum needs to be operationalized. Objectives must be explained, contents analysed, coherent teaching planned, several possible lines of approach suggested (coherent sequence of subjects studied), working tools

publicized, teachers brought to work as a team and to take their professional self improvement into their own hands. Activity teaching will have a very important place in helping to establish the new curricula. The general inspectors and the Institut Pedagogique Regional (IPR) have begun to establish systematically the new curricula for the Human Sciences in 1977-1978 in the "sixieme" and, in 1978-79, in the "cinquieme".

The whole problem of improving the initial training of teachers, and their subsequent refresher courses, still remains.

III. PEDAGOGICAL RESEARCH WITHIN THE FRAMEWORK OF THE HUMAN SCIENCES SECTION OF THE INRP (IN PARTICULAR FOR 16-19 YEAR OLDS.

A. General

The Human Sciences research section (History, Geography, Social Studies) was set up at the IPN (now the INRP) in October 1968.

1. Its Various Research Programmes

Research into Human Sciences was carried out for pupils in primary schools and for those in secondary "premier" and "second cycles".

The aim of the research in the primary schools was to enable the teams of teachers involved, to replace the traditional curricula of History and Geography by a reliable Model of the "activités d'éveil" and social sciences (adapted to the genetic development of children from 6-11 years old, implying genuine activity methods, using science in its contents, and the whole being written into a table of objectives). Published in July 1976 this model produced by the research teams of the Human Sciences section was widely used for the new official Primary schools curricula.

In the "premier cycle" the Human Sciences teams at the INRP perfected an operational framework [1] over the years 1970-74, which was proposed at the time of the Haby curriculum reforms. For geography, and social studies it was widely retained, and for history, also,

in the "quatrième" and "troisième". The new history curricula in the "sixième" and cinquième" were a compromise between the experimental framework of diachronic* history and the old synchronic curricula.

In the "second cycle" the Human Sciences research teams worked in several groups and have not yet worked out an experimental model able to replace the official curricula of 1967.

The research carried out since 1969 includes:

- Initiation to the geographical method by means of a prototype curriculum of self-correcting practical work (code: 74-06.4.01).

- Interdisciplinarity and the human and economic sciences (71-06.4.0.2).

- Initiation to the contemporary world, especially through the use of the press and other media (71-06.4.04).

- Initiation to the contemporary world through the social sciences, involving a prospective analysis of the environment (74-06.4.03).

- Attempt to determine a "second cycle" curriculum based on objectives for history, geography and social studies (common to all classes) (73-06.4.05). (2)

- Refresher courses for the teachers of Social Sciences (74-06.4.06).

Comments on the progress of this work

In fact, the first research, bearing specifically on geography, was completed without the issue of any general publication. Many papers of limited scope have however been published. (3) The two research teams concerned have carried out very significant work both in the specification of objectives and content and also in the field of pedagogy and evaluation. Programmed note-books based on the study of photographs were used at the National Centre of

* diachronic = thematic

Tele-teaching (public teaching by correspondence), their form being particularly adapted for isolated pupils. The research team is continuing its work during 1977-79.

The second research, which was carried out in only one lycée, remains unfinished since the team was broken up by transfer of several of its members. We realised basically how difficult it was to have real inter-disciplinarity at the "second cycle" level.

The third was successfully completed and two publications were brought out in 1976 in the INRP collection "Recherches Pedagogiques" issues No. 83 and 85. "The lycée pupils, the mass media and the contemporary world" No. 83. This concerns the use of the results of a survey (taken on a representative national sample in May 1973) of the opinions and knowledge of the "second cycle" adolescents as regards the contemporary world. And "Initiation of lycée pupils to the contemporary world, in particular the use of the press and other media." No. 85. This contains the report of the research using elements of differential evaluation (comparison of the results of pupils in experimental classes with those of the representative national sample).

The sixth does not concern geography, since it is research carried out on the retraining of those teaching only social sciences as specialized options.

In contrast to what was achieved in the human sciences section for the primary schools and the "premier cycle", we did not ask for authorisation to modify the official curriculum of the "second cycle", except that concerning the drafting of a curriculum by objectives. Innovation nevertheless did take place; and was brought to bear on methods and contents, without profoundly modifying the official curriculum. Teachers exercised explicit choices, as they are allowed to do.

This action research in the "second cycle", as for all research of the human sciences section at the INRP, is carried out in the field by teams of teachers working normally with their pupils. In addition there are weekly team discussions and national research meetings,

bringing together, once or twice a year, delegates from the teams around the person coordinating these activities nationally.

After a short phase of assorted innovations, within the framework of the research, controlled innovation then takes over: from one national research meeting to the next, all the teams of one research project use the same hypotheses and pursue the objectives that were decided on collectively.

It is thus only after some time that these teams manage to adopt a table of common objectives (4) and begin to evaluate either the research itself or the performance of the pupils, using different pedagogical lines of approach.

It is important to analyse the tendencies common to this research and, from it, to find out what place geography and its problems may have in the main body of teaching common to all classes (human sciences section) for the secondary "second cycle" in France.

B. Objectives

From the geographical studies carried out during the "activites d'eveil" and then in the "premier cycle", we may expect certain knowledge, know-how, attitudes and aptitudes from 16 year old pupils on their entry to the lycées. In fact, concepts and methods have already been approached and used, firstly, for 6-11 year old children and then for 11-12 and 15-16 year old adolescents. With a view to the spiral acquisition of concepts, know-how, attitudes and aptitudes (cf: J S Bruner), all these capacities are to be re-used, improved and completed during the "second cycle" with pupils who are still adolescent or already become young adults. The table of objectives for geography in the "second cycle" is thus at a higher level, but comparable with the one used for the secondary "premier cycle".

1. We can distinguish general objectives, not specific to geography, but of educational value which make it possible to follow the specific objectives better in

the different social sciences.

(a) Cognitive Objectives

- Learning verbal and non-verbal languages. Being able to transfer from one language to another (written and spoken language, mathematical language - coding and decoding - geographical language ...)

- Acquiring methods of observation and reflexion. Observation, analysis, criticism, case studies, synthesis. Being able to distinguish between a proven or probable fact and an opinion ...

- Learning work methods.
  Knowing how to carry out a survey in the field; discovering a way of treating problems; being able to observe, collect, sort, communicate, take notes,make out a bibliography, work alone or in a group...

  Using inductive and deductive reasoning.
  Knowing how to formulate hypotheses, investigating the relevant factors, confirmation or rejection of hypotheses ... drawing conclusions.
  Being capable of undertaking the same operations on documentary sources (written documents, iconographic documents, statistics ...).

- Acquiring and handling concepts in the field of methodology: theory, hypotheses, interpretation, document, crisis, flux ...

(b) Social Objectives

- Learning to live in society.
  Being able to listen.
  Being tolerant, having a sense of dialogue.
  Willingness to hear others' opinions.

- Becoming independent.
  Being able to make one's own enquiries, to use documentation, to justify one's opinions.

- Openness to information.
  Incorporating outside information (individual and from the media).
  Looking for information.

- Self-development.
  Being capable of creativity, of proposing one's own solutions, of action ...

(c) Psychomotor Objectives

- Perception (visual, auditive, tactile).
  Being able to place oneself in space, to move in space.

- Memorisation.
  Being able to use what has been seen, read, heard...
  Being able to summarize a document no longer in sight.

- Skills.
  Being able to sketch and draw.

- Care and speed.

2. The study of Geography implies also the perusal of objectives specific to its subject matter and its range.

- The most specific geographical concept is probably that of space, which concerns also localisation, distribution, organisation (networks, regions, forms, systems...).

- Another geographical concept: scale. Pupils must be able to grasp the idea of different scales: local, regional, national, continental, global, both at the spatial level and as phenomena.

- The geographical method implies field studies (surveys...) the use of statistics, realisation of photographs, sketches, maps, diagrams.

It is perhaps unnecessary to continue a list that has not yet been completed by the research teams. Objectives specific to geography, however, figure in the various tables of objectives made out by the different teams of the human sciences section.

- for the primary cycle.

- for the end of the last primary school class - entry to the first secondary school class.

- for the end of the "premier cycle".

- in the framework of the "second cycle" research.

The INRP teams were not made up of teachers taking time off from their teaching obligations: on the contrary, these are teachers carrying on their lessons as usual (a little less in certain cases). It is field work in classes and not laboratory work; it is also action research, that is, applied research and not fundamental research.

This situation is sometimes ambiguous, and we have often had to make epistemological analyses and theoretical reflexions which are indispensible before undertaking class work. We have defined research and working hypotheses according to certain aims and objectives decided on at the start. The groups have constantly alternated their efforts between consultation and theoretical reflexion (5) on the one hand, and innovation work, experimentation and in-field evaluation on the other. We feel the need to have a table of objectives at our disposal, and to translate this into pupil behaviour in order to use it operationally. Our research groups would like to use university studies and research experiments or pedagogical planning carried out abroad, which could enlarge the field of reflexion and limit the theoretical research.

C. Geography in the Pedagogical Models Instituted or Used by the Teams of the Human Sciences Section

Geography is present practically everywhere in the study topics decided on to constitute the pedagogical models which the research teams experimented on. Contrary to what some feared, the use of a "human sciences" or "social sciences" approach is not designed to take away the specificity and exactitude of certain subjects. On the contrary, it is to use these two aspects to their utmost. Certain problems that are debated intensely at the higher education level were also discussed by

the various research teams. A general concensus of opinion was arrived at and we could now give the example of Physical Geography.

- For the "activites d'éveil" in primary schools we have encouraged the economic and social fields as guidelines. In successive studies of "functional units" (the farm, the industrial firm, administration, a transport firm ...), physical geography comes in only in an explicative way (the role of relief, climate, soil, hydrography ... in studies of agriculture and animal rearing observable on the farm...). Strictly geographical activities exist too: observation of types of weather, meteorological records, making of charts, drawings, sketches, models ...

- In the "premier cycle": This is where within the human sciences history and geography tend to dominate. The objective here is the insertion of social studies and the coordination of these subjects.

  In history, the geographical setting of a topic in question is carefully outlined, the explanation of its economic mechanisms introduced and the socio-logical situation analysed. In geography, the historical factors are introduced as an explanation, and similarly for the purely demographic or economic aspects. The objective is to use the concepts and methods of various social sciences to enable pupils to understand better situations occuring in the past or in the present.

- In the secondary "second cycle" we have a comparable outlook. The problem arises, in the "classe de seconde" where the old curriculum (still official) of general geography contains large elements of physical geography. The INRP teams opted for the inductive method and project pedagogy (not yet widely practised).The research is not yet over.

Two items of research can attest to what has already been achieved:

(1) Initiation to the contemporary world through the social sciences in relation to a prospective analysis of the environment

On coming out of the "second cycle" the pupil should be able to understand spatial relations, operate

successfully in a strange environment, be independent and to react in the face of change. To do this, he needs to use tools, know-how, concepts and attitudes that a certain mastery of the social sciences - and of Geography in particular - can give him. Field surveys, class work, and more academic approaches have allowed the teachers of Castelnaudary and Valence to open up their lycees, introduce their pupils to problems of the contemporary world and of the world of adults, make them curious, dynamic and responsible.

(2) An attempt to determine a "second cycle" curriculum by objectives for history, geography and social studies

The aim here is also to initiate pupils to the contemporary world and to independent thinking and work. As in the case of the previous research the teachers work in teams and must, simultaneously, determine objectives, carry out innovations in class and prepare their pupils for the "baccalaureat" in the best possible conditions. (We point out here that the pupils in our experimental classes have a much higher pass rate than the regional or national averages.)

This important group (eight teams) used research hypotheses and common objectives [6], but the pedagogical lines of approach [7], particularly in the "classe de seconde", can vary considerably. There are lines of approach that are relatively close to those in the official curricula, research bearing rather more on methodological objectives, know-how, attitudes and pupils' independence; other teams have worked out an original syllabus for the "classe de seconde" (the bases of the modern world).

In concluding we need to point out two facts: our table of objectives is imperfect and incomplete; we have not yet tried out an operational model that could be adopted - as we did for the primary schools and the "premier cycle" - and generalized.

REFERENCES

(1) Diachronic history and study of geographical milieux in the observation period of the "colleges" responsible for experimentation. "Rech. Ped." No. 71-INRDP (1971).

(2) This research was preceded by some considerations involving another project, which was to set up an experimental lycée. Three working groups had worked on some theoretical ideas for history, geography and the social sciences. This work was the subject matter of issue No. 5 of the "Bulletin de liaison du second cycle" (INRP).

(3) For example, the "Bulletin de liaison de recherches dans le second cycle" No. 11, INRDP January 1975.

(4) For research 74-06.4.03 see the "Bulletin de liaison" No. 14 pages 35-38, INRP July 1976. For research 73-06.4.05 see the "Bulletin de liaison" No. 18, INRP December 1977.

(5) See for example the tables of structure-system analyses figuring in the 12th, 13th and 14th issues of the "Bulletin de liaison du cycle elementaire". The "activités d'éveil" Social Sciences-Human Sciences section INRP.

(6) See the above mentioned Bulletin No. 18.

(7) See the "Bulletin de liaison du second cycle", No. 12 - November 1975.

LA PLACE DE LA GEOGRAPHIE PHYSIQUE DANS L'ENSEIGNEMENT DU SECOND CYCLE DES LYCEES ET COLLEGES EN FRANCE. (CLASSE DE SECONDE ET DE PREMIERE)

ASSOCIATION FRANCAISE DE
GEOGRAPHIE PHYSIQUE

Presente Par
Jean Dresch

LA PLACE DE LA GEOGRAPHIE PHYSIQUE DANS L'ENSEIGNEMENT DU SECOND CYCLE DES LYCEES ET COLLEGES EN FRANCE (CLASSES DE SECONDE ET DE PREMIERE)

Les programmes de Géographie du Second Cycle des Lycées et Collèges sont en cours de rénovation: une rénovation qui était devenue indispensable, car la matière s'est considérablement renouvelée ces dernières années et l'Enseignement se trouve confronté à la concurrence des mass media qui ont pris une place importante dans la vie des élèves. Une part des difficultés apparues récemment dans l'application des programmes traditionnels tient précisément à ce que les élèves sont sensibilisés à certaines questions, tout en répugnant à assimiler certaines autres.

Or la place de la Géographie Physique dans l'Enseignement de Second Cycle, déjà très mesurée, risque de diminuer encore, voire de disparaître dans la refonte des nouveaux programmes, ce qui, à moyen terme, fait peser une menace sur l'enseignement de la discipline. En effet, si l'on veut éviter que la Géographie, à la fois Science de la Nature et Science de l'Homme, ne devienne une simple introduction aux Sciences Sociales, si l'on tient à sauvegarder l'unité d'une discipline qui n'a de sens que dans le global, et, par conséquent, si l'on veut préserver la notion d'enchaînements qui donne son prix à la Géographie, en replaçant les activités humaines dans leur cadre naturel, il est alors nécessaire de donner à la Géographie Physique la place qui lui revient.

Comme les autres Sciences de la Nature, la Géographie Physique a sa logique interne, sa problématique, son champ d'application (la Face de la Terre, plus vaste que l'Œkoumène), toutes choses qui demandent à être exposées en tant que telles aux élèves. Ce n'est pas porter atteinte à la dignité des hommes que d'insister sur le poids - très inégal - des contraintes physiques. Ignorer les limites des possibilités offertes par la Nature, c'est se condamner à ne pas comprendre les problèmes d'environnement et d'aménagement des milieux

naturels, alors qu'une des taches de l'enseignant est précisement de préparer les jeunes esprits à mieux comprendre ces questions.

C'est dans le cadre d'un Enseignement de Second Cycle obligatoire et étale sur trois années - Seconde: Geographie Generale; Première: la France dans l'ensemble européen; Terminales: les grandes puissances dans le Monde Contemporain - qu'ont été baties les propositions de programmes de notre Association. Celles qui figurent ici ne concernent que les deux premières annees du Second Cycle.

I. L'ENSEIGNEMENT DE LA GEOGRAPHIE PHYSIQUE EN CLASSE DE SECONDE

En élaborant ce nouveau programme, nous avons tenu compte d'un certain nombre de nécessités, pour nous impératives: intégrer les progrès des connaissances les plus importants, souligner l'interêt que peuvent presenter certaines méthodes et techniques d'acquisition et de présentation des faits, insister sur le caractère global et dynamique des milieux naturels, et enfin montrer chaque fois que cela est possible, les implications en Géographie Humaine et Economique afin d'éclairer les problèmes d'Environnement et les relations Homme / Nature.

Depuis un quart de siècle, des progrès très rapides sont intervenus en Géographie Physique et dans les disciplines voisines. Il n'est pas exagéré de parler de Révolution dans les Sciences de la Terre et de l'Atmosphère. Or la plupart de ces acquis ne sont pas passés - ou très partiellement - dans les manuels du Second Degré, de sorte que bien des enseignants, en voulant simplifier les faits et leurs interprétations scientifiques de facon excessive, sont conduits à donner de notre discipline une image vieillie, et même, parfois, totalement dépassée.

Vulgariser ne signifie pas trahir et il est inexact de prétendre que des notions à la pointe de la Recherche, et donc en relation avec des disciplines extérieures ne peuvent pas être présentées parce qu'elles sont neuves. Dans les sciences, les idées nouvelles sont souvent simplificatrices. Il est plus aisé, par exemple, de fonder le découpage morphostructural du globe sur la logique de la Tectonique des Plaques, conception qui bouleverse nos idées quant à la répartition des terres émergées et des domaines océaniques, quant à la localisation des grands types de relief. Elle renouvelle en outre notre interprétation de phénomènes qui pèsent directement sur la vie des hommes, comme les éruptions volcaniques et les tremblements de terre.

On ne peut plus présenter aux élèves une introduction à l'étude des climats sans s'appuyer sur les notions fondamentales des bilans et des transferts d'energie, sans adopter la perspective dynamique et synoptique des types de circulation, ne serait-ce que pour leur faire appréhender que la prévision du temps à court terme ne relève pas de la divination (Cf. les catalogues affligeants de la Radio et de la Television).

Bref, il est nécessaire de montrer aux élèves qu'un renouvellement important s'opère en Géographie Physique comme dans les autres sciences, qu'ils sont concernés et doivent être tenus au courant.

Bien évidemment, les résultats obtenus et les progrès futurs reposent sur tout un ensemble de méthodes nouvelles et de techniques elaborées qu'il convient de ne pas laisser dans l'ombre. Qui niera, par exemple, la part croissante des techniques de Télédetection dans la reconnaissance des milieux physiques, de leur évolution saisonnière, ou de leur dynamique quotidienne? Les domaines littoraux et prélittoraux se prêtent particulièrement bien à la démonstration.

Jusqu'à présent l'analyse en Géographie Physique a été conduite trop souvent de façon sectorielle en examinant tour a tour les pans qui font la richesse, mais aussi la fragilité de notre discipline: Climatologie, Biogéographie, Hydrologie, Géomorphologie.

Ce découpage, calqué sur celui de la Recherche, où la spécialisation est inéluctable, tend, au niveau de l'Enseignement, à masquer l'unité des paysages physiques et des milieux naturels. Ces derniers constituent des systèmes trop complexes pour que leur fonctionnement puisse être compris dès le début de l'année par des élèves qui n'auraient pas assimilé les bases physiques indispensables. En revanche, en cours d'année, cette approche très synthétique des milieux naturels devrait constituer pour l'élève une démarche enrichissante, d'autant plus fructueuse que l'Homme intervient à tous les niveaux de fonctionnement des systèmes. Il serait donc vain, comme on le fait trop souvent, d'opposer en Géographie Physique l'optique analytique et sectorielle et celle, plus globale, d'étude des milieux: elles se complètent heureusement et s'épaulent mutuellement.

Conçue sous un angle dynamique, l'étude des milieux physiques est assurément le domaine privilégié de recontre Homme/Nature et permet d'aborder correctement la question des rapports entre l'homme et les espaces naturels. Pénétrer le fonctionnement des systèmes c'est prendre conscience de leur précarité, accepter une limite aux prélèvements possibles en adoptant une attitude de prudence, en luttant contre une dilapidation inconsciente. C'est aussi préparer une utilisation intelligente et durable, en proposant des solutions positives en matière d'Aménagement.

Mais ce serait une erreur de penser que les relations Homme/Nature ne peuvent être abordées qu'au terme de la 1ère partie du programme, à l'issue de l'étude des milieux naturels. Tout en respectant l'enchaînement logique et la cohérence interne des grands thèmes de géographie physique, il est parfaitement possible - et même souhaitable, car cette démarche n'a rien d'artificiel - d'évoquer au passage les prolongements en matière de Géographie Humaine et d'Economie. C'est ainsi que la distribution géographique des minerais et des sources d'énergie fossiles pourra s'insérer dans l'étude des grandes unités morphostructurales du globe, au lieu de figurer dans les inventaires fastidieux, hélas les plus répandus! De même, les

sources d'énergie renouvelables (hydroélectricité, énergie solaire) et les ressources en eau relèvent logiquement de la Climatologie appliquée. Certes, dans tous ces exemples, il ne s'agit que de potentialités, plus ou moins largement utilisées et exploitées. Mais il appartient ensuite a l'enseignant, dans la 2ème partie du programme (Géographie Humaine proprement dite), et dans la Conclusion, de confronter ces disponibilités aux effectifs démographiques et aux besoins.

II. LA PLACE DE LA GEOGRAPHIE PHYSIQUE DANS LE PROGRAMME DE LA CLASSE DE PREMIERE

Le renouvellement du programme de la Classe de Première s'inspire d'un double constat:

(1) La place et le poids de la France dans l'espace européen, en particulier dans l'Europe Occidentale, échappent largement aux élèves. Or les économies des différents Etats sont de plus en plus dépendantes les unes des autres, et l'étude régionale de la France, telle qu'elle était conçue jusqu'à présent, ne permettait de situer la France, ni dans les ensembles physiques de l'Europe (plaine de l'Europe du Nord, Alpes, Fossé rhénan etc...), ni dans les ensembles économiques (Marché Commun).

(2) Le découpage régional de la France n'est plus enseigné la plupart du temps dans les lycées, bien que figurant officiellement au programme. Les professeurs reprennent, en le complétant, le programme de la Classe de Troisième, etude générale de la France par grands thèmes: climat, relief, végétation, fleuves, population, agriculture etc...

Le nouveau programme proposé vise à substituer au "micro-découpage" ancien un découpage par grandes régions répondant a un critère dominant (physique, historique, économique etc...) où à la combinaison de plusieurs d'entre eux. L'élève devra être moins sensibilisé aux nuances régionales de détail qu'aux grands contrastes de l'organisation de l'espace

francais. Il est apparu indispensable de conduire l'analyse de l'espace francais à une echelle qui ne soit pas celle des 22 Regions de Programme, qui reposent sur une base spatiale souvent artificielle.

En Classe de Première, la Géographie Physique ne saurait avoir la même place qu'en Classe de Seconde. Toutefois, on voit mal comment pourrait exister une Géographie Régionale digne de ce nom (et non pas une simple économie géographique) sans une projection de la Région dans un cadre physique précis.

La place de la Géographie Physique nous semble devoir se situer a trois niveaux:

(1) A l'échelle du pays tout entier, tout d'abord, il est nécessaire de replacer le territoire national dans son cadre européen, avec sa position géographique, sa configuration d'ensemble pour eclairer l'évolution historique, le role de la centralisation, et même les transformations économiques.

Mais, a cette échelle, la Géographie Physique ne se borne pas a fournir une simple "toile de fond": les données bioclimatiques et morphostructurales permettent d'introduire toute une série d'oppositions majeures, de contraintes naturelles, de "rugosités" qu'il est indispensable de saisir de facon suffisamment globale pour comprendre grands déséquilibres et mutations.

En realité, la Géographie Physique ne joue pas ce seul role négatif de "frein": elle donne aussi les clefs de la répartition des ressources naturelles (Hydro-électricité, charbon, hydrocarbures, et, bientot, énergie solaire).

(2) Pour appréhender la notion de région et le problème de la régionalisation, il convient de donner aux facteurs physiques un "poids" très inégal: parfois très contraignant, comme dans le cas des Alpes, ou les activités traditionnelles et modernes - tourisme - restent tributaires de l'étagement, parfois tout en nuances. Tel est le cas des plaines et plateaux du Bassin de Paris ou la Nature intervient par le biais des facilités offertes à la mécanisation de l'agriculture,

ou par l'intermédiaire de la fertilité chimique des sols, inhérente aux substrats limoneux hérités des environnements pleistocènes.

Peut-on vraiment saisir le problème de l'isolement, déterminant pour la vie dans certaines moyennes montagnes, comme le Massif Central, si l'on ne tient nul compte des caractéristiques de l'enneigement et du modèle des gorges?

(3) Au niveau du découpage régional par grands ensembles, la part laissée aux facteurs physiques sera donc logiquement à moduler selon leur importance, certes, mais aussi selon les modalités, directes ou indirectes de leur action.

Cela peut aller du brutal effet de domination des reliefs montagneux sur leur piedmont, jusqu'aux subtiles nuances climatiques de la facade oceanique.

On trouvera ci-après les propositions de programmes

de GEOGRAPHIE PHYSIQUE pour la Classe de Seconde,
de GEOGRAPHIE pour la Classe de Premiere,

elaborées par l'Association Francaise de Geographie Physique.

NOUVEAU PROGRAMME DE GEOGRAPHIE EN CLASSE DE SECONDE

PROPOSITIONS DE L'ASSOCIATION FRANCAISE
DE GEOGRAPHIE PHYSIQUE

Ces propositions ont été élaborées collectivement par le Bureau de l'AFGP en Mars 1977, et amendées en 1978.

A. GEOGRAPHIE PHYSIQUE: LA TERRE ET LES MILIEUX NATURELS

I Les océans, les continents et leurs reliefs

(1) Le point de départ est la répartition actuelle des terres et des mers.

A partir de planisphères, de cartes, de vues aériennes et d'images de satellites, il est aisé d'introduire la notion d'échelle.

C'est l'occasion de découvrir de grands types de reliefs et des paysages contrastés. Parallèlement, de nouvelles méthodes d'étude, et des moyens techniques modernes seront évoqués.

(2) Reliefs, structures et dynamique des plaques.

Explication rapide de la mise en place des chaines de montagne, massifs anciens , bassins sédimentaires.

Prévoir également une initiation a l'étude des déformations récentes de l'écorce, aux grands phénomènes catastrophiques (séismes, éruptions volcaniques), ainsi qu'a la morphologie des fonds sous-marins.

(3) En illustration, étude exemplaire de quelques grandes unites.

Par exemple: l'Afrique Orientale, l'Amerique du Sud ...

(4) Géographie explicative de la localisation des grands gisements minéraux et de certaines sources d'énergie (charbon, pétrole, géothermie).

II Les sources de la vie: le soleil, l'eau

(1) Le bilan des radiations.

Point des connaissances les plus récentes sur l'Atmosphère, apports d'énergie et déperditions, conséquences du point de vue de la dynamique atmosphérique (masses d'air et fronts, centres d'action thermiques et dynamiques, circulation en altitude et grands flux de la basse atmosphère).

(2) Bilan Ocean/Atmosphère; dynamique des climats.

Variations en latitude et selon les saisons du bilan Ocean/Atmosphère, étude des perturbations.

(3) Précipitations et cycle de l'eau.

Schéma du cycle de l'eau, mécanismes des précipitations, répartition à l'échelle planétaire.

(4) Quelques énergies renouvelables.

Energie solaire, vents, hydroélectricité, et les ressources en eau, y compris les ressources non renouvelables comme les nappes d'eau fossiles.

III Les milieux naturels et leur dynamique

Cette partie du programme repose sur la nécessité d'une perception globale du paysage.

(1) La carte des milieux naturels.

(2) Le fonctionnement d'un milieu naturel.

Schéma global des interactions entre les divers éléments d'un milieu naturel. L'érosion: transports de matière, expression de l'inégale stabilité d'un milieu.

(3) Les types de milieux continentaux.

Milieux instables (dont le milieu montagnard).
Milieux stables.
(études fondées sur des exemples concrets).

(4) Les milieux littoraux et maritimes.

Notions d'Hydrologie et de Biologie marine; étude de quelques exemples (plate-forme, mer fermée, milieu lagunaire ...).

(5) Modifications passées et milieux naturels: les héritages.

Notion d'oscillation climatique; variations du niveau marin.

CONCLUSIONS

Atouts et contraintes des milieux naturels; inégale vulnérabilité des milieux naturels devant l'intervention humaine (transition avec la deuxième partie du programme).

B. GEOGRAPHIE HUMAINE

Pour mémoire.

C. ENVIRONNEMENT ET RELATIONS HOMME/NATURE

- Les relations Homme/Nature et les modes de production.
- La croissance des effectifs et des besoins, face aux disponibilités planétaires.

  La dilapidation des ressources naturelles.
  Ressources renouvelables et non renouvelables (estimation des ressources, perspectives d'épuisement, implications politico-économiques).

- Formes de dégradation des milieux et formes de pollution liées à l'industrialisation.
- Vers de nouvelles relations entre l'Homme et la Nature.

  Protection et Aménagement.
  Ambiguités de l'action humaine: aspects négatifs.
  aspects positifs.

NOUVEAU PROGRAMME DE GEOGRAPHIE EN CLASSE DE PREMIERE

PROPOSITIONS DE L'ASSOCIATION FRANCAISE
DE GEOGRAPHIE PHYSIQUE

Ces propositions ont été elaborées collectivement par un groupe de travail emanant de l'AFGP, au cours de l'annee 1977-78.

A. LA FRANCE DANS L'ESPACE EUROPEEN

+ L'insertion de l'espace francais dans l'espace européen.

  Continuité et discontinuité des donnés physiques de part et d'autre des frontières; répartition des ressources naturelles renouvelables et non renouvelables.

+ La construction de l'espace national francais et le poids de l'Histoire.

  La centralisation francaise face aux situations des pays européens.

+ Le poids des données économiques et les formes d'intervention de l'Etat.

+ L'ouverture de l'espace francais.

  Le processus d'intégration européenne et ses limites; le role des agents économiques internationaux: firmes, états, institutions internationales.

B. LE DECOUPAGE REGIONAL

On s'efforcera de montrer la variété des critères de découpage et d'analyse de l'espace: critères physiques, historiques, économiques; role des villes, perception de l'espace. Le découpage se doit de couvrir l'ensemble de la France.

Quel que soit le découpage adopté, dans la mesure du possible chaque grand ensemble sera defini par une problèmatique régionale dominante. On évitera un "micro-découpage", mais, à partir de la region d'origine

des élèves, on cherchera à les sensibiliser à la realité d'espaces et de réseaux de relations de plus petites dimensions, afin de dégager la diversité des échelles significatives.

On propose ci-après un découpage par grands ensembles, fondé sur la combinaison de plusieurs des critères qui viennent d'être evoqués.

(1) Le Nord et le Nord-Est.

Deux vieilles régions industrielles face au centre de gravité de la C.E.E.; les problèmes de réconversion.

(2) La Région Parisienne (sensu lato).

Poids national de Paris; conséquences sur la géographie du Bassin Parisien (Lorraine exclue, Basse Seine comprise).

(3) La Moyenne Montagne francaise.

Dans ce chapitre, on regroupe les aspects communs au Massif Central, aux Vosges et au Jura: contraintes physiques, économie agro-sylvo-pastorale, aspects particuliers des industries.

(4) Les grandes montagnes: Alpes, Pyrénées.

Apercus sur la genèse des hautes montagnes (geomorphologie structurale, héritages glaciaires), la nature alpine, les aménagements spécifiques des étagements bioclimatiques.

On insistera sur la différenciation Alpes/Pyrenées qui s'enracine dans les données physiques, et sur l'opposition Alpes du Nord/Alpes du Sud.

(5) Le Midi méditerranéen.

D'abord le critère bioclimatique bien connu, avec ses conséquences sur le problème de l'eau. Unité de civilisation d'une région longtemps rurale, comme la plupart des facades mediterranéennes. Impact brutal des ilots d'industrialisation et des implantations touristiques. Conséquences sur les vieux réseaux urbains.

(6) La facade de l'Ouest et du Sud-Ouest.

Plaines et plateaux soumis aux influences océaniques qui se modifient du Nord au Sud et d'Ouest en Est; poids des économies rurales, diversité, problèmes de leur modernisation. Les noyaux d'urbanisation et d'industrialisation et les rapports avec l'Aménagement du Territoire (décentralisations).

(7) Le cas d'une région de programme fort hétérogène: la Région Rhone-Alpes.

Fondée sur l'importance du carrefour Lyonnais dans l'axe Rhin/Rhone /Méditerranée, cette région permet de montrer aux élèves la relativité des découpages régionaux. Elle permet aussi de poser le problème d'une métropole régionale, et ... européenne (?).

Il va de soi que l'enseignant est libre d'insister sur tel ou tel ensemble regional.

GENETIC PSYCHOLOGY AND THE TEACHING OF GEOGRAPHY

Jean-Michel Henriet

GENETIC PSYCHOLOGY AND THE TEACHING OF GEOGRAPHY

Activity methods have enjoyed for many years a favorite position with teachers in elementary education. The classes of the "lycee" and in particular the last sections ("seconde", première and "terminale") participate very little in this renewal of methods. The lycee teacher has remained, above all, a specialist concerned with the presentation of knowledge proper to his discipline. Since 1968, under the influence of the ferment of revolutionary ideas signs of change have appeared: pedagogic meetings on audiovisual techniques, group work, independent study, objective based curricula,etc. - there has been an evolution in pedagogy which has also raised some problems. One of these consists in considering the new techniques as a goal in itself. Another difficulty comes from the geographic content, which is often the classical view of the discipline, without any concession to recent tendencies in geographic research. Taking these preliminary remarks in consideration, it appears practical to us to define certain of the principles which structure modern teaching methods on one hand, and on the other hand to confront these principles with possibilities offered by the New Geography. Are the two steps compatible from an educational perspective for adolescence? That is the question which we will attempt to tackle.

Psychological research concerning the child and the adolescent are a valued support for the teacher who is anxious to teach at a level which corresponds to the intellectual possibilities of his students. The best known works in French, are those of Piaget; numerous pedagogic works cite his presentation of stages in the intellectual development of the child and the adolescent. One of the most generally admitted aims of education is in fact to favour the development of intelligence. For the teacher, this objective, if acceptable, is expressed too vaguely to be rapidly operational. Rather than rely on a theoretical definition of intelligence one should rely on its manifestations. Referring to Piaget two characteristic functions appear: comprehension and invention. To comprehend, according to the elements presented in Bloom's

taxonomy, is to be able to transpose, interpret and extrapolate. In fact, what is at stake is to find or to rediscover the process of transformation whereby the object or a phenomenon is the result, at a precise moment when one is studying it. That step cannot be taken without the help of general mental mechanisms, which are called upon in all circumstances where comprehension is imperative.

The second manifestion of intelligence - invention - also demands the application of certain types of know-how: analysis, synthesis, creativity, judgement. Invention leads to the discovery of the process of transformation leading to the subject, in other words, to understand it. The usual sequence using comprehension as a starting point for intellectual development is reversed to the advantage of another function: invention. The pedagogic application of this principle is most instructive: in the first place the idea itself of invention is translated by the subject's activity; the know-how required to analyse a phenomenon, to judge it is not pre-established, at all and as such is not susceptible to be transmitted by the master by simple assimilation; it required apprenticeships, experience linked to individual or group work.

In the second place Piaget's conceptions impose, from a dynamic angle, a pedagogic step stressing individual experimentation first before reaching an understanding of the process of transformation resulting in a phenomenon. In other words, the linking of action with understanding constitutes a psychological justification for current pedagogic tendencies better known as activity methods. If the very principle of the priority of experience seems thus to be recognized, its operational application brings multiple problems. For example, is the student's activity based on mental structures present from his birth, or, inversely, can one imagine a progressive elaboration of the operation of acting on and understanding the world around us? It was partially to be able to reply to this question that Piaget was led to state explicitly in which conditions intellectual development comes about in the child and the adolescent. Of his findings, two facts compel recognition.

In the first place, it seems henceforth a well established fact that psychic growth takes place in stages before reaching a state of balance at about 14 or 15 years coinciding with entering the second cycle of the "lycée".

Each of these levels gives rise to precise manifestations of mental activity, either individually or collectively. Let us list, from numerous studies: the stage of the reflexes, the first use of the limbs, of sensori-motor intelligence, of intuitive intelligence, of concrete operations and finally, at about 11-12 years, the hypothetical-deductive or formal stage. The last interests us particularly as it reaches a state of equilibrium at the age of 14 or 15. Psychologically, this equilibrium permits the adolescent to become detached from what is real, from concrete phenomena in order to develop a way of reasoning while using hypothetical terms. This in combination leads him to search for that proposition among the possible that by deduction most clearly identifies with reality. Here we see a complete inversion in the way of thinking; up till 12 years the possible seems only like a simple short term continuation of reality; beyond that combinations of the different possible links intellectually tried out lead to the pursuit of reality. Such a change in reasoning, however, cannot take place without a parallel adaptation of elementary operational structures and the logical combinations thus brought about.

The mechanisms now put in place arise from a tendency, found to exist at the age of 11 or 12 years, to dissociate the different factors intervening in the constitution of a phenomenon in order to appreciate their respective parts by isolating them or by regrouping them experimentally. It concerns combining processes leading the subject to master a certain number of basic propositional operations and as equivalence and its reciprocal, implication and non-implication, conjunction and incompatibility, affirmation and complete negation, etc. At a higher level of integration, these elementary operations can be combined ending up in more general ideas usable in certain conditions of experience as those of proportion, probability and correlation.

If this quick sketch gives us the chance to grasp the situation better, at least in the formal stage, as how a balance between the way of thinking and the usable operational tools is established, it does not resolve another important problem for the teachers, namely how to pass from one stage to another. Is it a purely biological phenomenon of progressive development of the nervous system or a psychological process linked to the presence of constant factors, intervening throughout maturation? The first hypothesis can certainly not be

pushed aside, but it seems rather to constitute the necessary network on which the mental mechanisms superimpose themselves, thus allowing the acquisition of knowledge.

Research has it that interest constitutes one of the driving processes in the intellectual development of an individual. Psychologically, this element which is constantly present from childhood till adolescence, appears in principle when a gap is created between the conditions initially in balance with the operational mental systems used up till that moment and a situation or new needs, understanding of which leads to clashes, incompatibilities with regard to the mental system applied from experience. The reaction consists of a recreation of the conditions for a certain mental balance either by assimilation to existing structures, or by elaboration of new structures (accommodation) leading to a stage of stability different from the preceding. A last element worth knowing is whether interest can develop on its own or under the impulsion of exterior factors. The two possibilities seem to be contradictory. From the first the result is that the hierarchy of stages as presented by Piaget shows up everywhere, parallel to the development of interests. The second possibility is shown by the fact that the chronology of the stages varies from one individual to another in relation to the sociological influence of the student's environment, and in particular in relation to the educational action. The latter will be more efficient in the development of the intelligence the more it keeps pace with the mental balance and its evolution processes.

Does geography teaching meet these requirements of psychological analysis? More particularly, does the method of teaching spatial phenomena in geography agree with the elaboration of formal thought, i.e. with the most abstract forms of intelligence?

The first obstacle comes from the fact that nowadays there does not exist one way to approach geographic problems, but, broadly, there are two conceptions, one traditional and the other connected with what is called the "new" geography nowadays. My purpose is not to reopen discussions on the value of either one of the conceptions, but to analyse them from the viewpoint of the mental processes their presentation implies at adolescence.

Mostly unaffected by the concepts and the techniques of the "new" geography as yet, the teaching of geography in the "lycees" offers evidence of the disjuncture between curriculum and developmental psychology. In the "classe de seconde" centred on general geography the study of concrete cases is not used to develop theoretical or scientific geography; the required knowledge of the "premiere" and "terminale" classes can be conceived providing supporting evidence for the geography curriculum of the "seconde".

This weakness is increased by another deficiency. The mental operations as presented by Piaget suppose an activity by the student, i.e. the possibility of transforming the characteristics of an object or a phenomenon in order to understand it better. Traditional methods, even renovated by audiovisual techniques only lead to a false intellectual activity in the sense that the student is not necessarily required to become operational; he is not asked to experiment with, and transform information. In terms of genetic psychology, this finding suggests that traditional geography does not succeed in inculcating the operative structures characteristic of formal thinking. A last proof of this discordance lies in the inductive approach, the only one which is recognized by numerous geographers, while the adolescent is developing hypothetico-deductive thinking. The lack of enthusiasm of many young people for the study of geography comes from this disjunction which,unfortunately with the present curriculum, will only increase till the end of school attendance? Will the teaching of "new" geography be able to fill the gap and, if so, on which conditions? That is the question we are going to examine now.

The necessary mental structures depend above all on the method of analysis appropriate to the "new" geography. Three elements seem to play an important part at the level of secondary education: classification, explanatory relations and representation in space.

The need to regroup and to put things in an hierarchical order appeared a long time ago in geographic studies. They became really important when the exceptionalist character of our discipline gave way to more nomothetic approaches to the organisation of space. The same tendency ought to be seen in the "lycées". A typology of classifications relates to divisions based either on one single criterion (e.g. density) or on the taking into

simultaneous consideration of several attributes (for instance: natural population rates of growth with net migration). No matter which technique is used, each requires from the student a good grasp of the use of logical structures for the determination of categories, as, for instance, the operative notions of equivalence symmetry and asymmetry. At a much broader level the categories fit one into one another according to the laws of structures leading to an orderly system: classification. The logical operations corresponding to that process link up with the notion of groups or with that of a network of categories put into hierarchy, the latter leading to branching structures. The detail of all these operations is a matter for formal logic. Genetic psychology puts their elaboration back into the frame of intellectual development of the individual; it allows one to specify that logical classification relating to formal representations (as do the notions of enumeration or density) only appears possible as from 11 or 12 years old, reaching an equilibrium towards 14-15 years. Thus there would be a certain concordance between the need to classify the content of geography, the logical mechanisms needed to be able to do so and the intellectual possibilities of adolescents, especially after 14 or 15 years.

The second element which has been raised previously - explanatory relations - comes from the desire to take numerous variables into consideration in order to better understand the complexity of geographic phenomena. Factor analysis and multiple regression constitute the best known elements of multivariate analysis nowadays. Their complexity more often than not excludes them from the second cycle of the "lycees" in favour of simpler techniques relating to the correlations between two phenomena for instance. The logical structures of analysis, however, differ little from one exercise to another. They relate, in a general way, to the truth or falsity of links capable of existing between proportions, whence the name of interpropositional logic which was given to this type of study. This step ties up basically with such elementary operations as implication, equivalence, affirmation, exclusion, connection and disjunction. Each of these structures is linked with an inverse operation (examples: complete negation against affirmation; incompatibility against connection) which doubles the number of basic interpropositional

possibilities. More broadly the elementary structures are regrouped in more general notions, called operative schemes. Those are the notions of proportions, but above all of probability and correlation and frequent use is made of them in the teaching of modern geography. In a final analysis, they are part of the process of displaying the existing links between series of data. This research relies upon formal hypotheses concerning possible interpropositional relations, hypotheses which afterwards may be abandoned or confirmed using all the operational structures known in the field of the logic of propositions. It appears that the geographic road of evaluation of the explanatory connections is not inconsistent with the system of the formal logic of propositions. Once again, genetic psychology shows us that mental operations become possible when students acquire hypothetico-deductive thinking from the age of 14 or 15. From then on the concordance between psychological maturity and the logical requirements of geographic analysis of explanatory connections seems satisfactory.

The last point we examine, and which is implicit in all that precedes, concerns space. It occurs in particular at another level than that of typological classifications and depends more precisely on the logic of completeness. Space as conceived by the new geography does not limit itself to the localisation of spatial elements, independent from one another. On one hand it reveals links which can exist between the elements of a classification. On the other hand, it integrates the notions of movements between fixed points (cities, firms) in the form of flows, and of putting these into a hierarchy. At the mental level, this step implies the mastering by the pupil of notions of relations between disjointed phenomena, a mastering which cannot be complete if it is not based on the measuring of distances, surfaces, volumes either directly, or through the intermediary of surrogates. In that respect the map constitutes a preferred tool of analysis for geographers. Its use supposes, in particular, that projective structures of conservation of forms (lines, surfaces, volumes) be acquired which enable quantitative measurement of the observed phenomena to be achieved. In parallel, the notion of spatial measure springs from the mental possibility

of conceiving a linear displacement between two fixed points, according to a system of coordinates structuring either the map or the continuous space which constitutes the volume. Essentially, geographical work defines itself in a Euclidian space, even if present research tends to prefer the non metric distances (rectilinear, radial, circumradial distances for instance). The works of Piaget show that the definitive constitution of that space according to his own system of coordinates passes by different intermediate stages going from topological elementary structures (appreciation of objects taken separately) to the notion of a continuous space (the volume) structured by a logical system of coordinates. This development occurs in parallel with the development of formal thinking, that is to say towards 14 or 15 years of age.

On this important point of the representation of a more or less formalised space as it appears in the studies of the "new" geography , the necessary training needs to be in harmony with the intellectual possibilities of the individual from the age of 14 or 15 years old.

A certain correlation shows itself between mental processes acquired on one hand and intellectual maturity on the other. In fact, the pedagogic problem remains complete if one remembers that the notion of the active method implies transformations with regard to objects or phenomena. Our analysis, up till now, in speaking of logical operations usable in such and such a geographic situation (classification, correlations, representation of space) admitted implicitly that the student was really in a situation to carry out these operations, and thus to experiment. Does the "new" geography offer this possibility of experimentation that can lead to the development of hypothetico-deductive thought?

The techniques having this property are few in a field where the elements of transformation escape the initiative of the researcher. Simulation games can, it seems, answer that expectation. If their place is well assured at the research level, the geography staff of the lycees, in France, scarcely knows about them. The contents of the courses centred above all on the limited studies of space (regions, states) certainly

slows down the development of simulation games, in spite of the undeniable psychological, advantages they present. Briefly, they allow a problem to be posed, thus creating the conditions for disequilibrium, the starting point for motivation. The evolution of these conditions has something in common with hypothetico-deductive thinking since it becomes possible to check the value of the formal propositions expressed at the beginning. These methods interpose a complete series of operations, requiring as required classification, explanation, the use of cards, etc. At this level the mental mechanisms are created enabling access to the formal way of thinking on the one hand, and to better understand the complexity of the geographic phenomena on the other hand. The research which simulation involves can prove to be an excellent educative tool at the level of secondary education.

If it is true that the place of discipline in the framework of teaching should not only be interpreted in terms of specific content, but also as a means of education for the individual, the "new" geography seems to be able to offer undeniable advantages at the level of adolescents.

With regard to the aim we established at the beginning - to develop the student's intelligence - it demands a mental activity which, curiously enough, tends to approach the methods of thinking of adolescents, but above all of adults. This evolution, logical in itself, also found in other disciplines as modern mathematics, ends up in a rather neat adjustment of spontaneous operative structures to principles or methods related to the teaching of the "new" geography. Do we, then, have to draw the conclusion that the classical conception of presentation of our discipline has to be rejected? If we consider that traditional geography sticks more to what is concrete and the concrete operative structures, it appears to be in better equilibrium with the intellectual maturity of 8 to 12 years olds according to Piaget's stages, while the transition to the formal way of thinking takes place between 12 and 15 years, i.e. in the framework of the first cycle of the second level. The organisation of the cycles of education in this manner would enable the findings of genetic psychology to be taken into account, and would avoid a confrontation of traditional geography with the "new" geography; it appears that

the two conceptions have to fill the educative role, but at different mental ages. One of the reasons for the crisis in the teaching of geography in the "lycees" is that official curricula have ignored these stages; the presentation of the fundamentals of the "new" geography in the second cycle of the lycees would greatly remedy this situation.

THE AIMS OF THE TEACHING OF GEOGRAPHY IN THE SECOND STAGE OF FRENCH SECONDARY EDUCATION

Paul Claval

THE AIMS OF THE TEACHING OF GEOGRAPHY IN THE SECOND STAGE OF FRENCH SECONDARY EDUCATION

I. Geography has held a honourable place in the second stage of secondary education in France during the last three quarters of the century. Since 1902 when the syllabuses were devised, the general conception has not fundamentally changed. The students devote each week 1/½ to 2 hours to geography. For the past thirty years, the time allocation has been somewhat reduced, but not to the point of changing the system.

Geographical education nowadays faces a crisis. Students are not interested in the programmes offered to them. That results partly from the minor importance of history and geography in examinations: these subjects were, until this year (1978), only examined in the oral part of the baccalaureat examination; experience showed that a very rudimentary knowledge was sufficient to obtain an acceptable mark.

The crisis is not only caused by the methods used in examinations. It is connected with a clear disenchantment with geography in many French circles. This is astonishing, because travelling has been made easy; many students have travelled throughout their own country and gone abroad; one generation ago those experiences were exceptional and happened later in life. Young people now know that they can visit Africa, America or Asia if they want. Has this destroyed the interest in the exotic which attracted them to geography? Is it the development of the media which enables them to see the world as it changes which devaluates traditional education? Undoubtedly, this is true in part, but the crisis has deeper roots. It is linked to the very conception of the courses and the philosophy behind them.

II. In the second stage of secondary education, the three year geography programmes have no obvious continuity. The first year is devoted to general geography. That seems a reasonable conception: is it not the right to give the students the concepts and methods which will prove to be absolutely necessary later? Initiation to physical geography, geomorphology and climatology take a large part. Human geography is often sacrificed: unless based on such an elaborate group of principles

as natural geography, its presentation seems more difficult and teachers in secondary schools go through the subject at a faster rate. Ecological concerns have been largely ignored by the course: they are taught by teachers of natural science.

The second year is devoted to the geography of France - and, for many years - its colonial empire. The regional point of view has been dominant for some fifty years, from 1910 till 1960. In recent years more time has been given to general problems concerning society and the French economy; there is also more emphasis on the improvement of land use planning.

In the final year the theme is that of the world powers. Their list has fluctuated somewhat, but the theme remains; it is the analysis of countries whose demographic, strategic and economic weight are so important that they play a major part on the world scene. Advantage is taken of the opportunity to show the contrasts which exist between the various economic and social systems and to bring out how these developed.

The overall structure of the courses has not changed, but its emphasis has varied. Up to the second world war the part devoted to the world economy was more important than now. In the first year the geography of the major products in world trade was dealt with: this was covered again in the final year, but tackled from the angle of the contribution made by the large countries. The continuity of education was thus more marked. In the first year economic geography underlined the place of human activities and avoided a lack of balance which might have occurred through concentration on the description of the physical environment.

Since the second world war, the analysis of the distribution of resources and productive means lost ground; economic geography was eliminated from the first year on the pretext that it burdened the memory unnecessarily. Instead syllabuses emphasized growth, capitalism, socialism, the third world and the politics of development. The second year course has developed in the same direction, with emphasis on growth and development within a French framework. In the final year the field of study is reduced and attention is focussed on one example of a capitalist

developed country, of a socialist country and a country in the process of development. The objectives of the course are narrower; there is less concentration on the power of nations; and more on their economic and political structures.

III. These transformations are interesting; for in spite of the rigidity of the courses, the syllabuses have been adapted to cater for the evolution of economic and social reality and reflect certain modern research themes. From this point of view pedagogic practice follows the development of French geography from Demangeon to George via Cholley, Clozier and Chabot. In total, the impression of stability prevails nevertheless. During all this time the aims of the teaching of geography have not been reconsidered.

Geography, like history, has the characteristics of a general cultural discipline. Its aim is not to develop certain intellectual skills among the students, nor to familiarise them with the mechanisms of reasoning. The aim is to teach the children to locate themselves in the world and to place themselves within a cultural framework and in a geographic continuity which seem indispensable for the comprehension of our civilization.

This conception of education as initiation to culture represents one of the two sides of the rational pedagogy imposed in France since the 17th century: (1) we teach the children, and that is the active side, to master the fundamental tools of verbal expression and reasoning - language and mathematics; (2) we then show them to which culture they belong, in what time and in which place; therefore we tell them the history of their country and that of its literature, we describe the landscapes where former generations lived and which they shaped.

To give the sense of relativity of cultures and civilizations, we start from the national framework and that of the graeco-roman civilisations. We teach the young people to understand what is really at stake in the political struggle and in international relations by showing them the sources of power of national entities.

For a generation this view of a general culture is in the process of transformation, for we are more sensitive to the multitude of ways in which civilisations come to

bloom; we no longer set western experience over and above that of others. That is the motive for the amendments made to the courses as indicated above.

IV. The philosophies and ideologies followed by western nations were diverse, but they had certain elements in common - especially their conception of culture. For all of them, man's destiny only made sense if placed in a collective perspective, at the level of history, the nation and finally the world.

The prevailing ideologies and philosophies of the modern world owe more to Christianity than they admit. Does it not imply a philosophy of history? Does it not give a meaning to everyone's life by linking it to a universal evolution? The secular philosophies of the 17th and 18th century rejected revelation noisily, but they borrowed from puritan theologies the idea of the social contract which gives access to civilization: they fit in a natural way into history which gives a meaning to human life and to social institutions, and are sensitive to the differences arising from the diversity of surroundings where civilization develops. No matter who, conservative, liberal or revolutionary, all accept, without being aware of it, a certain conception of reasoning and of social periods which are at the basis of classicism, of the philosophy of the "enlightenment" and the historicisms in fashion in the 19th century.

The questioning of the ideological substratum which is common to western societies is recent. It coincides with the formation of systems of thought where the birth of society is no longer confused with the conclusion of a pact which cements at a stroke a numerous and extensive community and makes a fundamental social reality of it. Psycho-analysis opens the way: the founding myth of society which it invokes is that of Oedipus. It brings society and individual together in doing so. In order to understand himself, the classical man had to locate himself in a broad society, know its history, orientate himself in the surroundings and structure it laid down. But psycho-analytic man is not going to look so far for the keys to his evolution and the level of its meaning; he finds them close by, in society, but in societies of the father, the mother, the family; he knows that what counts is not to turn inwardly upon the values that this environment proposes,

for these are designed to curb drives, but to rebel against the mutilating constraints and to reject every system imposed from outside. In one step we pass from a general, global, impersonal space-time centred on objective universal references to a pattern of splintered spaces-times, centred on the individuals and of which the distant parts have no meaning.

Until the triumph of these new social ideologies, the ideal, for western man was to integrate himself into the continuity which could guarantee his equilibrium and gave meaning to his life as that of all mankind; now, the problem is for each individual to build a universe to his own measurements, as detached as possible from collective values and objectives.

The Frankfurt School was the first to grasp the social impact of the psycho-analytic revolution, but the transformation of mentalities had started long before the theory was laid down and the leftist glosses on Marxism and Freudianism proliferated. Psycho-analysis impregnates western society, where press, cinema, radio or television serve as vehicles and ensure a prompt distribution of easily understandable and usable themes.

The lack of interest in history and geography stems from this fundamental transformation of social ideologies in our world. Certain circles resist the temptations of the new model: marxism, in its orthodox varieties, cannot conceive itself without a unifying philosophy of temporal experiences and without a corresponding vision of space. But that is not enough to create the concensus without which no educational system can assert itself.

V. The crisis in geographical education is aggravated by the decay of traditional social structures. This ensured much of the initiation into the problems of economic and social life without the intervention of the school. One generation ago it was not necessary to teach a child in the country how a farm, a village or the church was run: their near relations did that. In the present urbanized world, the most elementary social and economic mechanisms are not understood by all: I know a girl of 14 years, not particularly stupid, who had not understood that her parents worked to earn money! For her it was because they had money that they worked!

So there is a movement in favor of initiation into the social and economic universe. It responds to legitimate misgivings. Furthermore, it goes hand in hand with the transformation of the sensitivities we raised above: in a society dreaming of giving their citizens more responsibility and rating everybody's participation in the common task very high and fighting against alienation, it is important that each one learns to analyse and to understand the environment in which he lives, to see the forces at work and to seize the exact moment when to take part. The problem is, therefore, not to forego the initiation into the world, the apprenticeship to environmental studies and geography, but instead of focussing it on a general presentation of civilization, (history and geography apprended at the level of the nations and the broader perspectives) it is preferable to see it as an apprenticeship to a personal exploration of the world. It is more important to develop an understanding of the forces and mechanisms at work in the world than to describe the great static configurations.

Geography can play a fundamental part in an initiation into the world which really interests youth today. New academic trends are moving in that direction.

Unfortunately, in France the rejuvenation of geography is taking place very slowly and most geographers in charge of administration stay imprisoned within old course structures. They cannot imagine that one can break with the habit of systematically presenting a well ordered picture of the world, upset the priorities and focus education purposefully on the teaching of an active personal geography.

The image of the discipline in the eyes of other social sciences and the general public is a poor one: so there is a tendency, in thinking of indispensable reforms, to reduce the part of geography or that of history. Many advocate the adoption at the secondary level of a multi-disciplinary approach. They forget that this only makes sense when at that level one has a group of concepts and principles at one's disposal better structured than the ones offered by individual disciplines. That is not yet the case.

The discussions now under way on the structure of French secondary education in social sciences started from uncertain premises: there was insufficent analysis of the problems which make a change indispensable; there

was lack of knowledge of what the different disciplines can supply to the training of adolescents; there is the risk of breaking completely with the encyclopedic education of yesteryear without replacing it by a working education adapted to real needs.

VI. It is premature to pronounce upon the final meaning of current experiences, but the role of geography in the training of future generations seems to us already to have been compromised by a refusal to found teaching upon a truly modern conception of the discipline.

THE RENEWAL OF GEOGRAPHY TEACHING TO THE 15-18 AGE GROUP IN AUSTRIA

Wolfgang Sitte

THE RENEWAL OF TEACHING GEOGRAPHY TO THE 15-18 AGE GROUP IN AUSTRIA

Before 1962 geography was taught in Austrian Upper-secondary schools for the most part in the form of regional-geography. It was descriptive, contained more or less the same amount of physical and human geographic elements and strove to train the student only to reproduce knowledge of facts from memory about the countries in the world. This kind of geography can be described derogatively as cape-and-bay-geography.

Each year there were two geography lessons taught per week in the four Upper-secondary school years. The syllabus began in the 9th school year with the non-European countries, followed on with the European countries in the 10th, Austria in the 11th, ended in the 12th with a survey on the world (development of population, super-powers, elements of the general economic geography).

In 1962 the first reform phase began. General economic teaching contents were added to the subject (mainly because of demands from a lobby of political pressure groups outside school), which now comes under the name "Geographie und Wirtschaftskunde", which may be translated as Geography and economic studies.

In that way Austrian School-Geography received a statutory order, in addition to its traditional task of describing countries and peoples, to present and explain phenomena, processes and interrelations as they are given to human daily requirements on the production, distribution, and consumption of products and services. The students should become sensitive to economic problems and introduced to a more rational economic behaviour.

Since that time such topics as "supply and demand, price system, business organisation, business cycles, national income and product, economic policy, alternative economic systems and so on" are also taught, but still on the basis of the traditional regional concept.

The new subject "Geographie und Wirtschaftskunde" is taught for two hours in the 9th school year, for three in the 10th, for two in the 11th and in the 12th, the final school year for four hours in relation to contemporary history.

There had been great difficulties in introducing "Geographie und Wirtschaftskunde" (GW):

- Firstly there were hardly any geography-teachers who had been sufficiently educated for these studies during their own university careers.

- Secondly the problem of integrating the new teaching contents with the traditional regional concept was inadequately solved or sometimes not at all.

- Thirdly as a result of the lack of adequate teaching materials and media (only for the 12th school year is there an efficient textbook to be found: "Altrichter, Klimpt, Sitte, Schausberger: Materialien zur politischen Weltkunde, 1972") the common teaching method is still the oral lesson by the teacher, whereby the transmission of facts and opinions which have already been thought out prevails.

A recent stage in the reform, which began slowly at the beginning of the 70s, attempts to eliminate some of these difficulties:

Nowadays the future teachers of GW are already being given an economic as well as a geographical education at university (still indifferent in quality - at present the best is on the University of Vienna - with lectures in "micro-, macro-, and political economy).

An experimental-school tries out new forms of organisation and a new GW curriculum. In this school "Geographie und Wirtschaftskunde" (GW) is obligatory for all students in the 9th, 10th, 11th school year with a sum total of 7-8 hours/week in the three years. In addition to this Geography as well as Economics are offered as options (only one of which is to be chosen). In the obligatory subject for all students the regional-concept was indeed retained, however no one ought to try to teach

as many countries as possible anymore, but the concept ought to be tightened up with the help of "cultural-regions" (North Africa and the Middle East, South Asia, East Asia, Australia and the Pacific, Latin America, Anglo America, Western Europe, Soviet Union), whereby there is a better possibility to concentrate on certain topics. In this way, for example, about Europe, subsequent themes are taught: relief and climate, ecologic landscape types, demographic structure and problems, urbanism in Europe, development of industry, problem regions, energy policy, integration policy, economic blocs, the social market economy, the welfare state, the communist economic system ...

Unfortunately for the most there is still a lack in modern teaching materials, however new textbooks are being prepared. That means that teaching is centered even more on the teacher, and he sees his main function in mediating dictated opinions. The experimental curriculum offers possibilities only in both the options Geography and Economics to shake off these faults, since less contents are offered here and more worth is placed upon the education of skills.

The option Geography, which has a fixed two hour week, uses no regional concept, but works thematically, whereby modern topics of scientific geography (environment perception, maps and statistics, man's impact on terrestrial ecosystems, differentiation of land uses within the city, pattern of housing in the city ...) can be dealt with partly in fieldwork techniques.

Finally it can be ascertained, that there is a gradual with-drawing from the old "cape-and-bay" geography, even in Austria.

The main problems of the future are firstly the better integration between economic and modern geographic contents, with a special regard of the political aspects, secondly the departure from teaching methods centered only on the teacher by encouragement of student activities.

Just as Trevor Bennetts wrote in the book "New Movements in study and teaching of Geography" in 1972, edited by N Graves: We must set out to stimulate our students to ask searching questions, we must teach them appropriate methods of analysing the various types of data that we handle, and we must encourage them to formulate hypotheses and then to test them rigorously.

In this way I welcome the cooperation of European geographers for an improvement of the curriculum.

Lit: W Sitte - H Wohlschlägl: Schulgeographie im Wandel.
Beiträge zur Neugestaltung des Geographie-unterrichtes in Österreich.
Wien, 1975. Verlag A Schendl

PROBLEMS OF THE GEOGRAPHY 16-19 CURRICULUM

A contribution from Switzerland

Klaus Aerni

PROBLEMS OF THE GEOGRAPHY 16-19 CURRICULUM

A Contribution from Switzerland

1. The Intermediate School II in Switzerland - Review

1.1. Separating and Uniting Features within the School Division.

The Swiss landscape is characterized by pronounced topographic lines of demarcation. These features have also marked the history of our country that - until 1848 - may be essentially described as a history of individual small states, the so-called cantons. These forces are still so powerful that an additional canton, the Canton Jura, will join the present 25 semi-cantons and full cantons during this year. This new canton will result from the separation of the northern Jura from the Canton Berne (map 1).

Within the educational system the division of labour between the Swiss Confederacy as superior body and the individual cantons is structured in such a way that the cantons have to provide for an adequate school organization for the primary school and the Intermediate School I, whereas the federal government can establish regulations about the professional training, and therefore about the Intermediate School II (diagram 1 and 2).

In order to be able to eliminate over a long period of time the obvious disadvantages of the cantonal variations in the school system, the educational directors of the cantons meet in regional conferences whose organisation takes cognizance of the existing differences of language and religion (map 2).

In 1972, the tendencies for a standardization in the Intermediate School II were set forth in a proposal by the Schweizerische Gymnasiallehrerverein (Grammar School Teachers Association); the realisation of this proposal is presently under discussion (diagram 3).

SCHWEIZ: Gliederung nach Kantonen
SWITZERLAND: Map showing Cantons

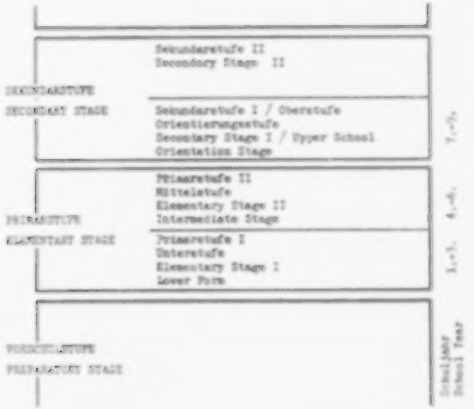
Karte 2
Map 2

0 50 km

Redaktion/Editor: Dr. K. Aerni
Kartographie/
Cartography: Th. Baumann

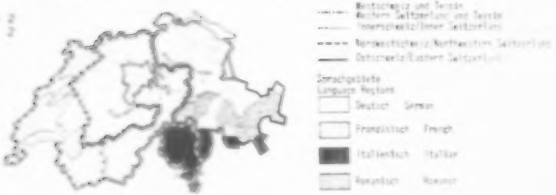
Vertikale Struktur des Schulsystems [Stadelmann 1974:1177]
Vertical Structure of the Swiss School System [Stadelmann 1974:1177]

Schema 1
Diagram 1

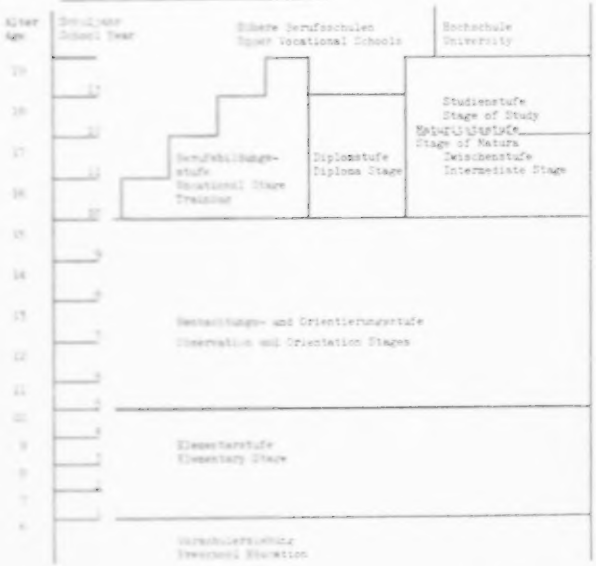


Regionalkonferenzen der kantonalen Erziehungsdirektoren
Regional Conferences of the Cantonal Education Directors

Karte 2
Map 2

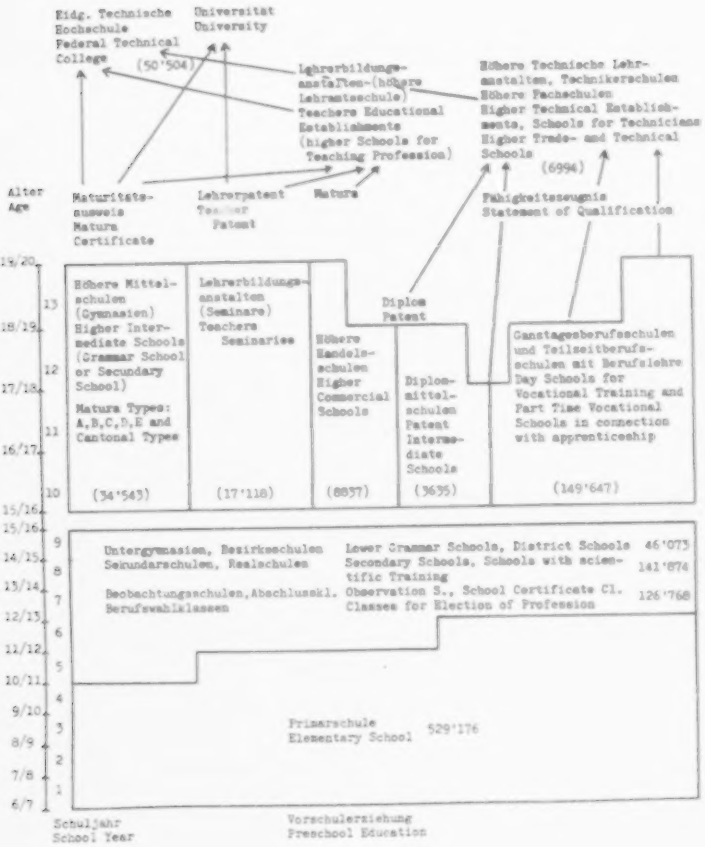


Schema 1 Schéma des vorgeschlagenen Schulsystems
Diagram 1 Diagram of the Proposed School System



Schema 2
Diagram 2

Organigramm des Schulwesens (vereinfacht)
Organisation of the School System (simplified)



2. Specific Problems concerning Geographic Instruction within the Intermediate School II (for the ages 16 to 19 = 10th to 13th school year).

The general renewal of the teaching system began rather hesitantly in Switzerland during the postwar period and with a certain delay, compared with neighbouring countries. The cause for this is found in the federalistic structure of the State which hampered a defined separation of the various types of schools of the same level, and in a certain reserve toward radical innovations. For this reason, spectacular innovations did not take place, and we hope to be able to gain in an increased measure from the experience of other countries.

2.1. Problems of Setting the Goal.

During the last ten years the discussion about the renewal of the school system in Switzerland has become spirited. As yet, little is perceivable of this renewal in official school documents. As late as 1973 the Swiss Federal Council issues a "Regulation for the Federal Graduation Examination" (Reglement für die Eidgenössischen Maturitätsprüfungen) that only contains summary goals for the Intermediate School II: and it consists essentially of a dry subject-list:

"Geography

1. Educational Aim

Adequate knowledge of the different natural zones of the earth. An understanding of the connections between geographical conditions and civlisation. Some familiarity with the problems of food supply, industralisation, and the production of energy. An insight into the necessity for the protection of environment quality.

2. Subject Matter

2.1. Basic knowledge of the topography of Switzerland, Europe and the other continents.

2.2. Main features of Swiss geology.

2.3. Methods of observing and presenting geography.

2.4. Natural and cultural factors.

(a) Climate, water, soil types, and vegetation.
(b) Population, settlement, economy, and traffic.
(c) Collaboration of these factors in typical environment and regions.

2.5. Changes of environment, areal planning and environmental protection."

Since a speedy and up-to-date renewal of the governmental regulations is not to be expected, the Schweizerische Geographielehrerverein (Swiss Association of Geography Teachers) was motivated to offer the teachers of geography a catalogue with study aims, containing newer views of the geography teaching, to augment the all-too-brief subject list. The subject "Model Landscapes" is presented here as an example:

"2.4.c Coordination of the natural and cultural factors in typical landscapes and regions.

Model Landscapes:

The candidate must characterise the following environments with their combined effect of natural and cultural factors based on pictures, maps, sketches, and charts.

- Model landscapes with special reference to the natural conditions corresponding to the normal climatic and vegetational zones (natural structures and traditional agriculture).

- Model landscapes with special consideration of man's influence and his technology (man-nature-structures with dominance of the secondary sector of industry. The areas of mechanised agriculture including irrigation and soil conservation, mining regions, industrial areas, and landscapes characterised by energy transformation.

- Model landscapes with special reference to the service sector (functional structures) as well as the social structures: agglomeration zones - evacuation zones, settlement structures, system of central locations, and recreation Areas.

Global Views:

The candidate must discuss the following topics based on pictures, maps, sketches, and charts:

- Developing countries - industrial countries (name the features, describe the problems, and characterise the variants of developmental help.

- Form an opinion of the collaboration of various regions of supply within the framework of the world food problem and the limitations to the utilization of the earth. "

As may be seen from the study-list, these goals may only be regarded as a rough outline. The list contains no reference to the organization of the instruction. The didactic fine-structuring as well as the methodical deliberation must be accomplished as before by the teacher. Though this list has a limited value, it will, however, make possible the future revision of the present regulations. Furthermore, it already serves as a base for the advanced educational training programmes of the Schweizerische Geographielehrerverein (Swiss Association of Geography Teachers) that is attended yearly by about one third of the circa 400 members.

2.2. Introduction of Areal Planning to the School Programme

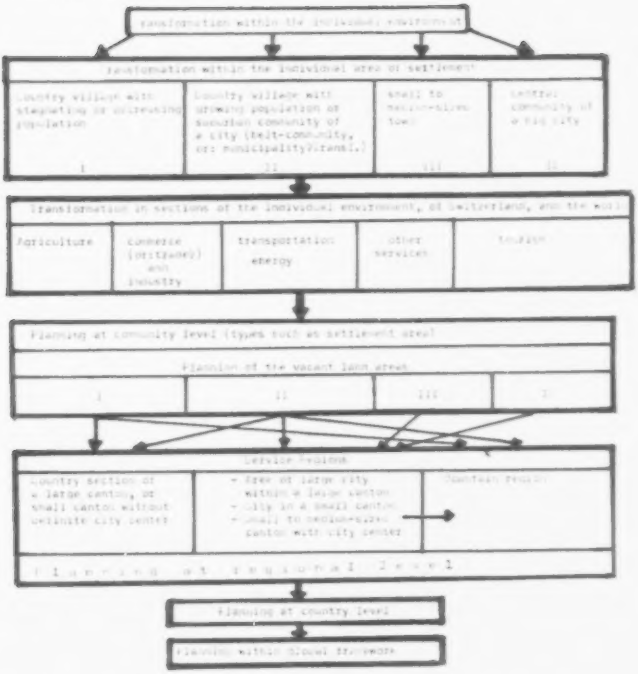
In 1976, the Swiss people rejected by a narrow margin a federal law for areal planning. The cause of the rejection may be looked for - on the one hand - in a disinclination for federal intervention in local affairs, but - on the other hand - undoubtedly in a lack of understanding of the necessity for specific measures of planning. The problems of areal planning in Switzerland has, until now, only been dealt with to a small degree in the schools; the teachers were unprepared for this work and above all lacked corresponding instructional material. Various regional instructional aids have, however, been developed, but the integration of the areal planning conception in the school curriculum is still not a reality.

In 1975, a study-guide for graduating classes of the Intermediate School I was issued by a group of teachers in Berne. The ideas were welcomed but no concrete teaching aids were available for designing lessons. Since the teacher would have had to work over the extensive literature and prepare teaching materials, the study-guide had little effect.

Since then, the delegate of the Federal Council who has been appointed to consider the problems of areal planning has issued a further assignment to the Bernese working-group. The new form of the proposal now also contains factual information for the teacher and, in addition, information and work-sheets for the student. Decisive was the regulation that the publication is to be applicable for all levels of education, and in all regions of Switzerland.

We, within the working-group, have decided on the following instruction material (diagram 6).

The Swiss Association of Geography Teachers hopes to offer herewith an essential contribution to the renewal of the geographical instruction within Switzerland.



→ indicate series of chapters, dependent upon the location of the subject

SECONDARY SCHOOL GEOGRAPHICAL EDUCATION IN THE USSR

by

V P Maksakovskiy

Moscow State Pedagogical Institute

Moscow 1978

189

SECONDARY SCHOOL GEOGRAPHICAL EDUCATION IN THE USSR
(senior forms)

Transfer to Compulsory Secondary Education has been recently carried out in the USSR. So all children (from 7 to 16-17) are given a certain amount of knowledge in different subjects according to the 10-year secondary school curriculum. About 52.5 million children attended school in the 1976/1977 school-year. The majority of children about 41.5m study at general education schools. Nearly 5m get their education in evening secondary schools for young workers. All the rest after finishing the 8-year school enter a technical or vocational secondary school which train skilled workers or other specialists and give them a good general education. The secondary school curriculum is universal for all schools over the country. All the textbooks are compiled according to certain requirements.

Secondary school curricula are drawn up in such a way as to provide for the best combination of general education (general knowledge of all subjects), technical training (an acquaintance with modern production), and labour training (ability to handle tools).

In 1977 the Central Committee of the CPSU and Council of Ministers adopted a new resolution which is aimed at providing a better labour training.

The number of technical and vocational secondary school is constantly growing.

The Soviet general secondary school is of a unified, vocational and polytechnical type. All the schools throughout the country are run according to unified principles of education and upbringing: they have the same curriculum and give the pupils universal knowledge which enables them to take an active part in the process of production. But the term "the fundamentals of science" in the epoch of technical revolution can be interpreted differently.

In the 60s the school curricula were revised in order to bring the contents and methods of education into

line with the present-day development of science. Now (1978) we are about to start another curricular and text-books reorganization. We should like to create a kind of universal scientifically grounded "standard" of secondary education in the USSR, i.e. to determine the compulsory volume of essential information in each subject and avoid material of minor importance.

All this has direct reference to the problem of teaching geography. Teaching geography has deep-rooted traditions. New Soviet curricula and text-books in geography which differed principally from the previous ones, were published in the nineteen thirties.

One of such tradition is studying systematic courses. Such courses are absolutely independent, i.e. they are not part of some wider integrated curricula. But it doesn't mean that geography exists and develops irrespective of other subjects. There is a complex system of inter-subject links between geography on the one hand and history, social science, biology, chemistry and physics on the other. Much attention is paid to the development of these links.

Another tradition is to study physical and economic geography separately as two main branches of geographical science. Owing to this, the structure of school geography in the USSR differs from that adopted in other European countries where synthetic, combined courses prevail. Such courses were formerly studied at soviet schools, but we consider them to be less efficient.

The advantage of the courses is in their versatility, moreover they reflect the modern development of two main parts of geography - physical and economic geography.

Before the introduction of universal ten-year secondary education the school course of geography had a concentric arrangement. As the 8th form graduates were to possess a certain complete amount of knowledge of the subject.

Now that a ten-year education is compulsory the school course of geography has a linear arrangement which includes two grades: physical geography and economic geography study.

The scheme is as follows:

Form	'Age'	Subject
5	'11 '	Elementary physical geography
6	'12 '	Geography of continents
7	'13 '	Physical geography of the USSR
8	'14 '	Economic geography of the USSR
9	'15 '	Economic geography of foreign countries.

Thus, the course of geography is studied for five years with three hours a week in the 6th form and two hours a week in the 5th, 7th, 8th forms (383 hours altogether). Besides there is Nature study (2-4 forms) and a few optional courses (7-9 forms).

The problem of geography teaching in senior forms are very vivid in the course "Economic Geography of Foreign Countries", studied in the 9th form. The main principles were reflected in my report at the Geographical Education Section of the XXIII International Geographical Congress which was held in 1976. In this paper I should like to give the most general additional conceptions.

Modern psychologists consider 15-16 year old pupils to be ready for the so-called intensive training reflecting the logical structure of the science. That is why our main task was to bring contents and methods of education into line with the present-day development of science. With other authors of school text-books for senior forms we tried to enlarge the amount of theoretical knowledge and at the same time reduce the volume of descriptive and concrete material. The development of typological approach helped to solve this problem.

The course is compiled in such a way that it is studied from the general to the particular and not the other way round as it is done in junior forms. In the general part of the course special attention is paid to the typology of the main processes and phenomena: the international geographical division of labour; the interaction of society and nature, population reproduction, urbanization, different types of countries, and types of economic regions, territorial production complexes and so on. Then these general notions are

concretized and deepened in the regional part of the course where different countries are studied separately. There are 3 themes in the second part of the course: first socialist countries are studied, then developed capitalist countries, then developing countries. The study of each theme begins with the general characteristics of the corresponding type of countries. Then come separate countries characteristics, the principle of geographical contiguity being observed. This intensifies the scientific typological basis of the course.

Geographers came to the conclusion that it is difficult to achieve the necessary assimilation of the subject within a limited number of hours. It is possible only by using a selective approach. A selective approach is used in the course on the economic geography of foreign countries in the Soviet school. There are more than 200 countries in the world, but pupils study only 24 (13 socialist, 8 developed capitalist, 3 developing). Each country is studied as one representing a definite type of country. It does not mean that the rest of the countries are not reflected in the textbook. In fact there is some information about all of them. But the information is limited and is to be found in special regional reviews.

The study of each country as a definite unit of the system of the international division of labour helps to show the specific feature of each country more vividly. As far as the giving of information on separate countries is concerned, the scheme includes the following items:

1. Economico-geographical position
2. Economic estimation of natural conditions and resources
3. Population
4. General characteristics of economy
5. Industry
6. Agriculture
7. Transport
8. Economico-geographical differences
9. Foreign economic ties

In some cases the order of items can be changed a little to show the peculiarities of this or that country. Such ideas are reflected in a new trend of soviet geography, so-called problematical country-study.

The introduction of this trend into the school geography goes together with the development of problem solving teaching techniques.

Soviet geographers do not consider the present system to be static. On the contrary, the future development of school geography is being actively discussed now.

They find it necessary to give the pupils information on the problems of ecology, social, regional and economic development.

But there are different opinions on the introduction of this material into the curriculum. Some scientists suggest transferring to the synthetic combined courses and studying general physical and economic geography in the senior forms. Besides they suggest the introduction of new courses, such as the preservation and remaking of nature.

That is why the problem of teaching geography in other countries is of great interest to us.

"ANSWERING THE CHALLENGE"

A REVIEW OF THE WORK OF THE SCHOOLS COUNCIL
CURRICULUM DEVELOPMENT PROJECT: GEOGRAPHY 16 - 19

by

Michael Naish, Ashley Kent and Eleanor Rawling

"ANSWERING THE CHALLENGE"

A REVIEW OF THE WORK OF THE SCHOOLS COUNCIL CURRICULUM DEVELOPMENT PROJECT: GEOGRAPHY 16-19

by

Michael Naish, Ashley Kent and Eleanor Rawling

THE CHALLENGE

In the early 1970's, it became clear that there was a need for a full-scale curriculum development exercise for geography courses for the 16-19 age group in England, Wales and Northern Ireland. The traditional sixth form of the secondary schools was rapidly changing, as was the very nature of the subject itself. Curriculum development for 14-16 year olds was already taking place, and teachers were asking what sorts of courses were to follow in the final two years of full-time school attendance. In terms of general educational objectives, new trends could be detected in that more stress was being applied to obtaining a balance between the acquisition of knowledge, some of which might rapidly become inert, and the development of the skills and techniques necessary to acquire new knowledge. The significance of attitudes and values in environmental matters and in the education of young adults was increasingly becoming apparent.

When these dynamic changes were examined and compared with geography courses for 16-19 year olds in existence at the same time, a clear mid-match was apparent. The following analysis (Fig.1) of Advanced Level courses in geography in the General Certificate of Education in the early 1970's illustrates this point.

Fig.1 Caricature of Advanced Level Geography Courses in the Early 1970's

- Explanatory description of areas - tends to become repetitive - or at least there is the possibility that it might.

- Learning sets of facts about particular places - the main load on the mind is that of remembering a compendium of facts.

- Lack of recognition of fundamental organising concepts which provide a framework for study.

- Lack of effort in developing skills other than book learning, essay writing, map interpretation, note taking, drawing a limited range of statistical diagrams and maps, some field techniques.

- Strong dichotomy between study of human geography (regional) and study of physical geography (systematic).

- Examinations test mainly the skill of essay writing, placing a premium on memory rather than critical thinking and other skills, particularly those used in geographical study and research.

Emphasis tends towards "the compilation of inventories rather than the solution of problems or the development of general concepts and theories".

A further pressure for change in the geography curriculum was exerted by general discussions about the need to broaden the curriculum for 16-19 students, which was, in the early seventies, and still is, in 1979, dominantly a curriculum which concentrates on study of two or three subjects at Advanced Level, and some minor element of general studies. Proposals for a genuine one year examination for one year students, and for a two-level five subject curriculum for two year students, have been under discussion since 1972. At a time when a new examination system is being considered, it seems essential for subject specialists to be working on the development of their specialism, so as to be clear about the nature of their potential contribution to the education of young people.

AIMS

It was in response to the challenge posed by this situation of changing demands that the Geography 16-19 Project was set up in September 1976, with a central team of three, including a geographical educationist and two practising teachers.

The Project began with two very broad aims, which were:

i. to involve teachers and lecturers in a reconsideration of the objectives, content and teaching methods of 16-19 geography courses, and

ii. by means of this involvement, to help teachers appreciate the significance of their role as curriculum developers.

Broad aims need to be translated into operational terms, and so the team proposed the plan for development which is given in Fig. 2. *

The survey was completed early in 1977, and provided the Project with a base-line for development. While it was being undertaken, the informal groups dispersed throughout the country were involved in the task of identifying the educational needs of 16-19 year-olds. Fig. 3 illustrates the findings of this work. The contribution of geography to the 16-19 curriculum was analysed, and as a result of this work, which included two national conferences, a set of broad aims for 16-19 geography was proposed. These broad aims are set in Fig. 4.

Fig. 4. Broad Aims for Geography in the 16-19 Curriculum

General Aims

1. To help stimulate enjoyment and interest so that students will wish to continue self-education through life.

2. To contribute to the development of an autonomous, thinking individual capable of playing a responsible role in society.

More Specific Aims

3. To prepare students for public examinations, thus presenting the opportunity to acquire a recognised qualification.

---

* Note that the Project has since been extended until August 1982.

Fig. 2

GEOGRAPHY 16-19: A PLAN FOR DEVELOPMENT

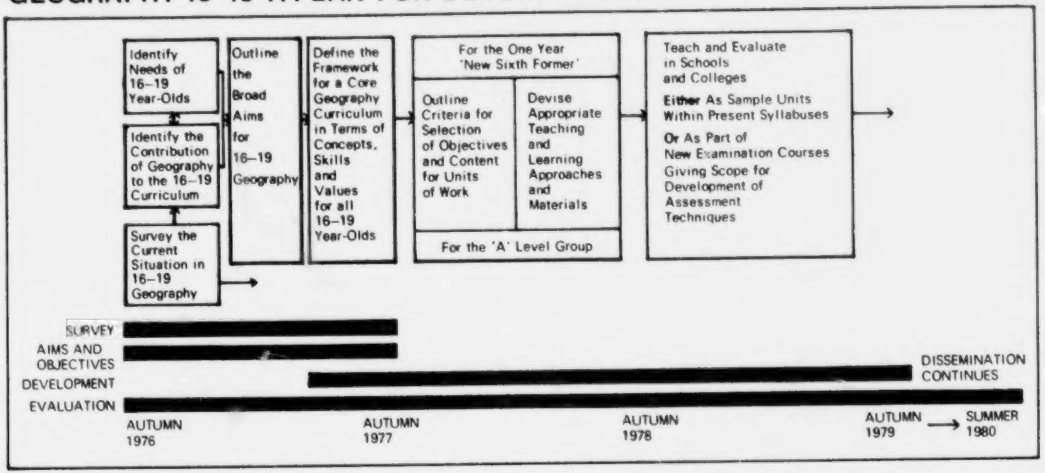
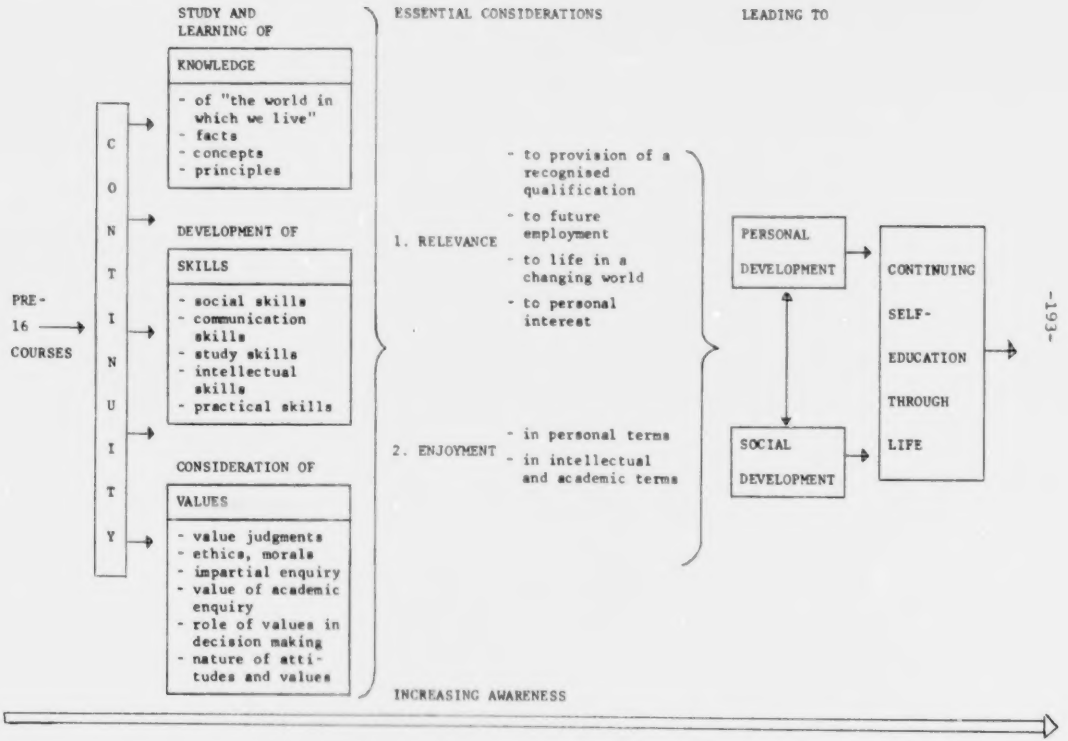

Identify Needs of 16–19 Year-Olds
Identify the Contribution of Geography to the 16–19 Curriculum
Survey the Current Situation in 16–19 Geography
Outline the Broad Aims for 16–19 Geography
Define the Framework for a Core Geography Curriculum in Terms of Concepts, Skills and Values for all 16–19 Year-Olds
For the One Year 'New Sixth Former'
Outline Criteria for Selection of Objectives and Content for Units of Work
Devise Appropriate Teaching and Learning Approaches and Materials
For the 'A' Level Group
Teach and Evaluate in Schools and Colleges
Either As Sample Units Within Present Syllabuses
Or As Part of New Examination Courses
Giving Scope for Development of Assessment Techniques
SURVEY
AIMS AND OBJECTIVES
DEVELOPMENT
EVALUATION
DISSEMINATION CONTINUES
AUTUMN 1976
AUTUMN 1977
AUTUMN 1978
AUTUMN 1979
SUMMER 1980

Fig. 3 NEEDS OF THE 16-19 STUDENT



4. To help provide elements of knowledge, understanding, skills and values which will be vocationally relevant in a direct or indirect manner.

These General and More Specific Aims to be Achieved by Geography Courses Designed to:

5. provide the opportunity for the development of social, communicative, practical, intellectual and study skills

6. provide the opportunity for students to understand the nature of values, attitudes and prejudice

7. provide the opportunity for students to consider their own feelings, values and attitudes in the light of their reaction to questions of environmental and spatial concern

8. provide the opportunity for increasing knowledge and developing understanding of important concepts and principles involved in geography

9. provide the opportunity for the consideration of these concepts and principles in regional settings at various scales from micro-scale to world-scale.

But broad aims are difficult to implement as operational propositions, and so it became necessary to prepare what the Project describes as a 'curriculum framework document'. In essence this provides the basis and rationale for the construction of courses at various levels within the 16-19 age range. To do this, the framework needed to fulfil certain demands, as set out in Fig. 5.

Fig. 5. Demands To Be Met By The Framework For 16-19 Geography

The Framework should:

1. provide clarity and coherence for the subject at a time when teachers and students alike are confused by changing emphases and approaches in the subject

2. encourage an integrated view of geography, stressing the links between physical and human geography, rather than allowing study of these two aspects to draw further apart

3. provide a way of reducing syllabus and course content to a manageable size, without destroying the coherence of the subject

4. clarify the important ideas and principles of geography and its contribution to the understanding and resolution of issues in the world today

5. allow the inclusion of content and teaching approaches which will stimulate interest and enjoyment for the students

6. provide opportunities for the development of a range of skills and techniques and for the consideration of questions of attitudes and values.

Taking these demands into account, the Project team, working with practising teachers, produced a framework which offers a statement of aims; a distinctive approach to geography; a set of key questions and guiding concepts for the subject; four Man-Environment Themes summarising the approach,and guidance on enquiry-based learning. Suggestions on coverage of a range of scales and environments are included in the general guidance on course construction which the framework provides.

Some details of the main elements of the framework now follow:

THE CURRICULUM FRAMEWORK

Aims for 16-19 Geography Syllabuses

16-19 geography syllabuses should enable candidates to acquire:

AWARENESS AND UNDERSTANDING

(1) an awareness of the geographer's contribution to understanding and attempting to resolve man-environment questions, issues and problems at different scales, and so an understanding of:
   (a) the key questions and guiding concepts of geography
   (b) the functioning and characteristics of both natural and human systems and their inter-relationships
   (c) methods of recognising, describing and analysing the spatial consequences of man-environment inter-relationships
   (d) processes operating to produce spatial patterns and structures

KNOWLEDGE

(2) knowledge of some regional and systematic aspects of the geography of selected parts of both the developed and less developed worlds

(3) knowledge of the global implications of some important man-environment issues in the modern world

SKILLS

(4) a degree of competence in practising a range of intellectual, social, communication, practical and study skills, including particularly the ability to use and prepare maps of different types and scales

(5) the ability to use such skills in following through logical steps in geographical enquiry and the clarification of values

ATTITUDES AND VALUES

(6) an attitude of concern for the quality of the environment, for the condition of human life and for the biosphere as a life support system

(7) the ability to relate to the environment and to sense conditions which either enhance or threaten survival or living things

(8) an approach to learning which will facilitate awareness of the nature and significance of attitudes and values in environmental questions, issues and problems

DECISIONS

(9) the ability to make decisions with regard to spatial and environmental questions, issues and problems and so to enhance the ability to play a responsible, participatory role in society.

The Man-Environment Approach To Geography

The Man-Environment Approach to geography is characterised by emphasis on the examination of questions, issues and problems arising from man's inter-relationship with his environment. 'Environment' is used here in its widest sense, to include the physical, socio-cultural and behavioural environments influencing and influenced by man.

As a basis for geography courses, the approach involves drawing out the geographer's distinctive contribution to environmental understanding. This requires understanding of important spatial and environmental concepts in geography and the use of a range of methods employed by geographers in explaining spatial patterns and interactions and in understanding the functioning of human and physical systems.

The approach demands understanding of the way in which geographers can move from description, explanation and analysis to application, commitment and implementation, thus stressing the geographer's concern for and contribution to the improvement of the quality of man's environments and therefore the quality of life. To clarify the geographer's contribution, the Project put forward a set of key questions and guiding concepts.

The Key Questions and Guiding Concepts

The Project takes the view that all geographers ask certain basic, or key questions, and that these direct study in a distinctive way and lead to understanding of the guiding concepts and ideas of the discipline. The key questions and guiding concepts, as postulated by the Project, are set out in Fig. 6.

The Four Man-Environment Themes

In order to permit the construction of courses based on the Man-Environment Approach, the Project proposed four organising themes. Each theme summarises an important

Fig. 6

KEY QUESTIONS AND GUIDING CONCEPTS

	Definition and Description		Explanation and Prediction			Evaluation and Prescription
ASKING	WHAT AND WHERE?		HOW AND WHY? WHAT WILL?			HOW OUGHT?
KEY QUESTIONS	What are the phenomena being studied? What is their appearance and character?	Where are the phenomena located in space? What patterns of distribution are created?	How are phenomena structured and organised in space? How are phenomena related in systems?	What processes are operating to cause and change spatial locations, distributions, patterns, structures and systems?	In what ways will space be organised in the future, and with what influence on man and man's environments? What are likely trends and developments?	What are the likely effects of alternative solutions? How ought space to be organised? In what ways should man's environments be managed and used?
leads to understanding of GUIDING CONCEPTS AND IDEAS	(NATURAL AND CULTURAL PHENOMENA AND ENVIRONMENTS)	- LOCATION - DISTRIBUTION - PATTERN - SPATIAL ASSOCIATION	- SPATIAL ORGANISATION - SYSTEM - REGION - SPATIAL ASSOCIATION	- SPATIAL INTERACTION - MAN-ENVIRONMENT INTERACTION - PHYSICAL PROCESSES - ENVIRONMENTAL PERCEPTION - DECISION-MAKING - BEHAVIOUR	- QUALITY OF ENVIRONMENT - QUALITY OF LIFE - WELFARE - CONFLICT/ HARMONY - SPATIAL JUSTICE - MANAGEMENT AND PLANNING	- DECISION-MAKING - QUALITY OF ENVIRONMENT - QUALITY OF LIFE - WELFARE - CONFLICT/ HARMONY - SPATIAL JUSTICE - MANAGEMENT AND PLANNING

set of ideas within the Man-Environment Approach to Geography, and between them they provide a complete summary of it. The themes range in emphasis across the dominantly natural to the dominantly man-made world. They are:

THEME 1 - NATURAL ENVIRONMENTS - THE CHALLENGE FOR MAN

This theme focuses on understanding the complex inter-relationships between man and natural systems and environments.

The geographer is interested in understanding how man's response to the natural challenge, posed for instance by uncertain climatic conditions or difficult natural environments, produces changing locations, patterns and forms of natural and human phenomena. He is also interested in translating this understanding into proposals for the improvement of man-natural environment relationships. Study within this theme will necessitate an understanding of the functioning and characteristics of selected natural environments and systems, and of how they provide both possibilities for use and development, but also risks, problems and hazards for man. It will also require an appreciation of the various factors influencing man's response to the challenge and the resultant environmental impacts.

THEME 2 - USE AND MISUSE OF NATURAL RESOURCES

Natural resources, those components of the natural environment which are used by man to further his continuing existence on earth, are of particular interest to the geographer. Man's use and development of natural resources, such as minerals and water, create special relationships with the earth's natural environments. These activities also have consequences in terms of locations, patterns and the character of human activities.

Study within this theme will provide the opportunity for consideration of the nature of resource supply and demand, changing attitudes to resource use, future resource development and the environmental and spatial consequences of the way man obtains and uses resources.

THEME 3 - MAN-ENVIRONMENT ISSUES OF GLOBAL CONCERN

This theme is concerned with important questions about man's relationship with his environment: questions,

for instance, about food supply, the developing countries and resource depletion, which may be considered to be of global concern in that they have actual or potential implications for the whole of mankind.

Study within this theme should emphasise the geographer's approach to the questions, examining the way that man-environment problems are manifested in changing patterns, forms and locations. In this way, the extent to which the geographer's particular environmental and spatial understanding can contribute to an improved quality of life may be assessed.

Although a variety of topics may be studied under this theme, coherence will be achieved in terms of the necessary international or global perspective required.

THEME 4 - MANAGING MAN-MADE SYSTEMS AND ENVIRONMENTS

Under this theme, the emphasis is on man-made systems and structures, such as transport systems and built-up areas, which have been created to enable man to fulfil his varied needs in an increasingly complex world.

The geographer is interested in the way that man uses and manages these systems and structures in space, and in the resulting impacts on the quality of life and environments. Study will thus necessitate an understanding of the character and functioning of selected man-made systems, and an appreciation of the variety of natural and cultural factors influencing their development.

Knowledge Principles

The following broad knowledge principles may be exemplified through study across the four themes:

1. Man is an inseparable part of the global system within which physical and cultural environments are closely inter-related.

2. The global system is made up of numerous man-environment sub-systems at various scales.

3. Phenomena of physical and cultural environments occupy distinct spatial locations and distributions on the earth's surface, and flows exist within and between them.

4. The operation of physical and cultural processes within man-environment systems has spatial consequences and produces change in time and/or space. Such change varies in pace, and there may be periods of stability.

5. The operation of these processes also results in human situations ranging from harmony and co-operation to disharmony and conflict.

6. Man has the ability to alter distributions and processes operating within man-environment systems, the consequences of which may range from being beneficial to adverse.

7. Management and control of man's interaction with his environment is of key significance for his continued welfare and survival.

8. The geographer's understanding of the spatial organisation of man-environment systems provides him with the potential to make a distinctive contribution to improvements in the environment and the quality of life.

Range of Scales and Environments

The Project suggests that courses constructed from the framework should ensure a balanced coverage across the range of environments, from dominantly natural to dominantly man-made, as well as a balanced coverage of scales of study, from small scale and local through intermediate scale to global. To help achieve this, the Curriculum Matrix, Fig. 7, is provided. Topics of study can be indicated on the Matrix in order to build up a picture of the balanced coverage of themes and scales of study which a course should provide. The Matrix could also be used to examine coverage of regional examples in a course. In this case, the row titles of the Matrix should indicate broad regional divisions, e.g. 'Western' Developed Countries; Communist Countries; Developing Countries.

Enquiry Based Learning

The framework also provides guidance on the development of skills and the consideration of values.

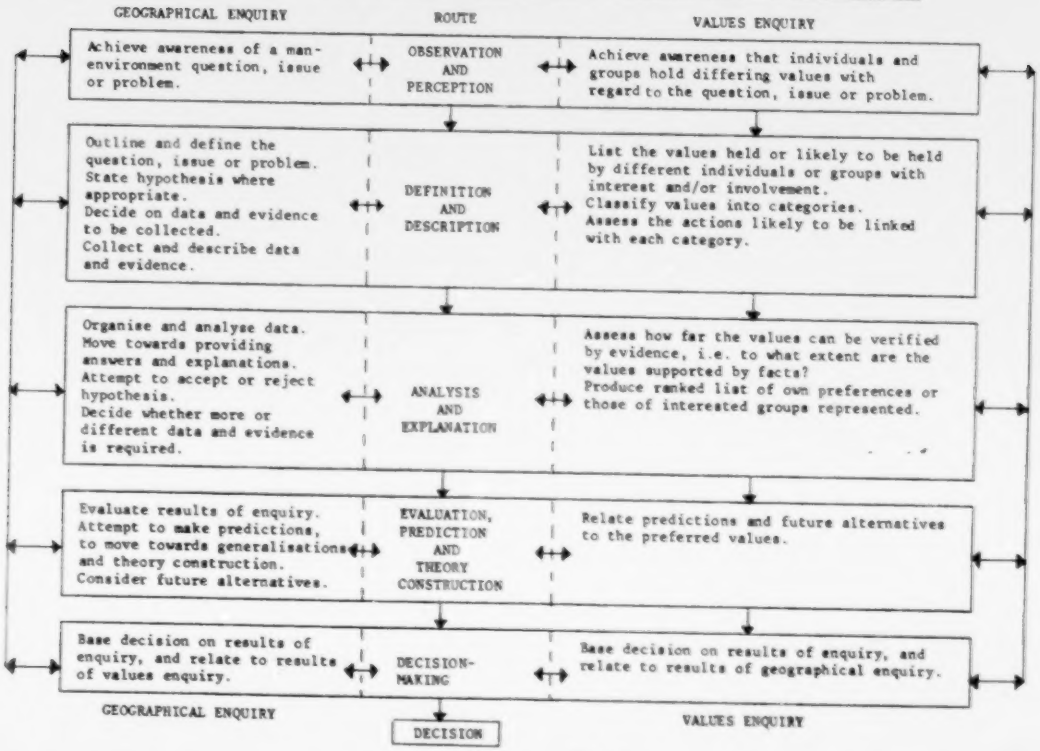
The Project has proposed a route for enquiry (Fig.8) which is designed to help teachers to structure their

Fig. 7 THE CURRICULUM MATRIX

ENVIRONMENTS AND SYSTEMS	Dominantly natural environments and systems ◄——► Dominantly man-made environments and systems			
THEMES / SCALES	THEME 1	THEME 2	THEME 3	THEME 4
SMALL SCALE				
INTER-MEDIATE SCALE				
GLOBAL SCALE				

NOTE: SMALL SCALE = Small scale case study, e.g. town, farm, factory, village. Local study. INTERMEDIATE SCALE = Small regional scale, e.g. U.K. Planning Region. Sub-national scale, e.g. S.E. England. National. Major province. Major natural region. Continental. GLOBAL = world patterns and distributions.

Fig. 8 GEOGRAPHY 16-19 PROJECT: A ROUTE FOR ENQUIRY


GEOGRAPHICAL ENQUIRY
ROUTE
VALUES ENQUIRY
Achieve awareness of a man-environment question, issue or problem.
OBSERVATION AND PERCEPTION
Achieve awareness that individuals and groups hold differing values with regard to the question, issue or problem.
Outline and define the question, issue or problem.
State hypothesis where appropriate.
Decide on data and evidence to be collected.
Collect and describe data and evidence.
DEFINITION AND DESCRIPTION
List the values held or likely to be held by different individuals or groups with interest and/or involvement.
Classify values into categories.
Assess the actions likely to be linked with each category.
Organise and analyse data.
Move towards providing answers and explanations.
Attempt to accept or reject hypothesis.
Decide whether more or different data and evidence is required.
ANALYSIS AND EXPLANATION
Assess how far the values can be verified by evidence, i.e. to what extent are the values supported by facts?
Produce ranked list of own preferences or those of interested groups represented.
Evaluate results of enquiry.
Attempt to make predictions, to move towards generalisations and theory construction.
Consider future alternatives.
EVALUATION, PREDICTION AND THEORY CONSTRUCTION
Relate predictions and future alternatives to the preferred values.
Base decision on results of enquiry, and relate to results of values enquiry.
DECISION-MAKING
Base decision on results of enquiry, and relate to results of geographical enquiry.
GEOGRAPHICAL ENQUIRY
VALUES ENQUIRY
DECISION

teaching material, and to develop the study methods employed by their students.

Within the Man-Environment approach to geography, study should usually begin with consideration of a man-environment question, issue or problem, and this is investigated by following through the route for enquiry.

The left-hand column (Fig. 8) is closely related to the hypothesis testing and problem solving routes for scientific enquiry. The right-hand column provides guidance with regard to the consideration of the values element of the question, issue or problem under consideration. Students follow a set of logical steps to enable them to recognise and clarify the values which they and others hold with regard to the issues under consideration.

Work within the route for enquiry will provide opportunities for the practice and development of a range of skills and techniques employed by geographers.

USING THE FRAMEWORK

The Project's Curriculum Framework is currently being put to the test through the construction of courses. An Advanced Level Syllabus for the General Certificate of Education has been prepared. This will be mounted by the University of London Examinations Board on behalf of all the other Examination Boards. It is thus a viable alternative for all schools and colleges who may wish to take it up, as the system permits them to enter candidates for the Project 'A' Level without the difficulty of having to change Boards. The first courses will be taught from September 1980, with first examinations in the summer of 1982.

Courses for one-year students are also being constructed from the framework. These are for the Certificate of Extended Education, and they are being prepared under the Mode 3 system. This means that the schools, in collaboration with the Project team, propose the syllabus and the form of assessment. The assessment is school-based, and the Examination Board vets the syllabus and moderates the assessment to ensure that standards are maintained, and are comparable with other courses. There are currently six experiments in C.E.E. work in operation through Project schools.

These new examination courses will make considerable demands on the expertise and professionalism of teachers, and the need for support is certainly recognised. One major form of support is the production of teaching materials which exemplify the man-environment approach, and provide a fund of resources for teaching the new syllabuses. This represents another very important strand in the work of the Project, for without such supportive materials, the feasibility of the Man-Environment Approach and its implementation in actual courses might remain in doubt.

INVOLVEMENT

In all this work, the Project team is supported, guided and encouraged by a national network of practising teachers who are formally linked with the Project. The map (Fig.9), shows the distribution of this involvement. Pilot groups, usually of three schools or colleges, have linked associate schools attached to them. These groups are well supported by their local authorities, and are co-ordinated in the main by an expert from a local college or university department. They maintain close contact with the central team. At another level of involvement, separate Associate schools and colleges help to extend awareness of the Project's work nationally, and provide a further source of supportive effort from a departmental rather than a group viewpoint.

These linked schools and colleges have played a vital part in every stage of the Project's work, commenting on drafts of documents; helping to formulate the framework; developing the examination syllabuses; preparing and evaluating teaching materials. The teachers perform a very important function as formative evaluators for the Project. They also help in local and national dissemination work, and this element of their work will become even more significant when the Project moves into its major dissemination phase with a series of regional conferences in 1980-1.

CONCLUSION

The Geography 16-19 Project has the difficult task of attempting to carry through a 'system-wide' curriculum renewal for the subject as it is taught within the 16-19 age range. By 'system-wide', we mean that it is far

Fig. 9

GEOGRAPHY 16-19 PROJECT: LEA's WITH FORMAL SCHOOL AND COLLEGE LINKS

more than simply a syllabus revision. Rather, it encompasses all elements of the curriculum, from aims and objectives, through consideration of content, teaching approaches and evaluation, and including the necessary feedback flows for the refinement of the various elements of the system. Public examinations take their rightful place at the end of this system, which places the curriculum as the first priority, and the examination as a product of the curriculum.

The Project is also on which places great stress on in-service teacher education. It is, in effect, a massive in-service exercise, which should be extended in the dissemination phase, and which involves teachers in personal and professional development through facing up to issues which genuinely concern them and their students.

Finally, it should be recognised that the long-term purpose of the Project is to help build towards a system which actively encourages continuous curriculum re-appraisal. In this way, fossilisation of the geography curriculum may be avoided, and the subject will continue to develop its potential for contributing towards the education and personal and social development of young people.